

**EXHIBIT 10**  
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## EXHIBIT 11

**Can standard setting organizations address patent hold-up? Comments for the  
Federal Trade Commission**

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Standard setting organizations (SSOs) are forums where firms negotiate over shared design parameters so their products can work well together. This process produces many benefits: users may share information, or “mix and match” components; the cost of market entry declines; and there is a division of labor, enabling specialization in component production and innovation. While inter-operability can be achieved in other ways, such as decentralized technology adoption or the actions of a dominant firm, SSOs are perhaps the most common path to compatibility.<sup>1</sup>

Antitrust authorities have generally viewed SSOs as a form of pro-competitive horizontal cooperation. For example, the United States’ Standards Development Organization Advancement Act of 2004 (H.R. 1086) provides that SSOs are evaluated under an antitrust rule of reason, and are subject to actual rather than treble damages. However, there is concern among academics, policy-makers and practitioners that patent-holders can exploit the cooperative standard setting process to extract excessive royalties from standards implementers.

When a patent is necessarily infringed by compliant implementations of an industry standard, it is called “essential.” Essential patents can be very valuable, since a successful standard reduces competition from substitute technologies. Thus, while SSOs may have good reasons to include patented technology in an industry standard, doing so places essential patent owners in a very strong bargaining position if the standard succeeds. This is a special case of what economists call the “hold up” problem.

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<sup>1</sup> Biddle, White and Woods (2010) identified over 500 compatibility standards used in a prototypical laptop computer and found that 80 percent were developed by consortia and formal standards developing organizations. See Farrell and Simcoe (2011) for one discussion comparing alternative paths to compatibility.

Patent hold-up problems could be solved by disclosing patents and negotiating prices before choosing a standard. But uncertainty over the existence, validity and scope of potentially essential patents makes it difficult to negotiate a license prior to implementation. As an alternative, many SSOs ask patent-holders to commit to reasonable and non-discriminatory (RAND) licensing terms. However, many observers worry that it is not clear how firms or courts are meant to interpret this promise.

Proponents of the current system argue that SSOs should focus on technical issues; intellectual property owners should be compensated for the costs and risks of technology development; and that prospective licensees can avoid the hold-up problem by taking a RAND license or proposing an alternative technology within the SSO. These are valid points, but there is a counter-argument to each. Technical decisions should always be weighed against the likely costs of implementation, which include licensing. As described in the FTC's report on "The Evolving IP Marketplace" (FTC 2011), overcompensating patent owners has real social costs. And it is unclear whether the patent system or the disclosure rules adopted by many SSOs provide sufficient notice for prospective standards implementers to engage in *ex ante* negotiation.

This short essay argues that patent hold-up in standard setting is a real problem, and considers several steps that SSOs, courts and policy-makers might take to address the issue.

### **Standard setting and patent hold-up**

Standard setting organizations serve as a forum where industry participants perform collaborative research and discuss the merits of alternative technologies. The goal is to identify the best available solution to a given technical problem when there are gains from coordinating on a common design. Ultimately, SSOs choose a particular technology and issue a formal endorsement. This certification is meant to

signal the end of deliberations and promote industry-wide investments in the new technology.<sup>2</sup>

Difficulties arise when investments in a new standard are sunk (i.e. irreversible or technology-specific), leading to what economists call a “hold-up” problem.<sup>3</sup> Sunk investments make a technology cheaper to deploy (on a forward-looking basis) than alternative solutions that offered a potential substitute before standardization. Thus, when the technology in a standard is patented, the intellectual-property holder can charge royalties up to the difference in implementation costs before vendors will switch – even when the *ex ante* cost structure of two technologies was identical.<sup>4</sup> In other words, a patent that is worthless prior to standardization (given the existence of a perfect substitute) may become quite valuable if SSO endorsement leads to substantial technology-specific investments.<sup>5</sup>

In principle, producers that recognize the possibility of hold-up could protect themselves by conducting a comprehensive patent search and securing the necessary licenses before implementing a new standard. But firms in the information and communications technology (ICT) sector rarely do this given the large search and transactions costs associated with up-front licensing. Just finding the relevant patents can be hard, since a modern laptop or smart-phone will implement hundreds of standards and infringe thousands of patents. Assuming firms can locate all of these patents, they might reasonably hesitate to sign licenses when there is uncertainty over each patent’s scope and validity (FTC 2011). Finally, even if all relevant patents could be located and their scope and validity accurately

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<sup>2</sup> David and Greenstein (1990) and Shapiro and Varian (1998) describe the economic and business strategy issues associated with the formal standards process. Rysman and Simcoe (2008) provide some empirical evidence that SSO endorsements have an impact on the value of the underlying technology.

<sup>3</sup> Williamson (1985) introduced the hold-up problem, which he called the “fundamental transformation.” Farrell et al (2004) provide a detailed discussion of hold-up problems in this context.

<sup>4</sup> While policy debates often focus on “technically essential” patents, it is worth noting that the hold-up problem can also apply to so-called “commercially essential” patents, which are complementary to a standard, but not an inherent part of the specification.

<sup>5</sup> Of course, this argument depends critically on the assumption that the patent is valid and enforceable. However, the threat of injunction may provide even “weak” patent owners with a very large stick in the bargaining process.

assessed, transaction cost considerations lead many ICT firms to prefer a broad company-wide cross license over a narrow license covering just those patents needed to implement a particular standard.

Given the large search and transaction costs in markets for intellectual property, ICT firms often design, build and market their products *before* trying to clear all of the relevant property rights, even though this exposes them to hold-up by patent owners. A few large firms negotiate up-front cross-licenses, but even these companies may find themselves locked into a counterparty's proprietary technology when those agreements are renegotiated.<sup>6</sup>

While inefficient markets for intellectual property are a general problem, hold-up problems are especially severe when firms hold patents in industry standards. Once a standard has been selected, SSOs work hard to promote coordinated investments by a broad community of implementers, and these investments are often very costly to reverse. Thus, a widely diffused standard provides a large pool of potential licensors, reduces competition from substitute technologies and makes infringement easy to detect. Simcoe, Graham and Feldman (2009) provide some evidence on this point. Their study found that patents declared to SSOs were 4 to 7 times more likely to be litigated than a typical patent with the same age and technology class. These high litigation rates do not imply widespread hold-up, but are a strong indication that the market for standards-related intellectual property is not functioning well.

Looking forward, there are several reasons to worry that conflicts over standards-related IP will increase and intensify. First, the secondary market for patents appears to be growing, with increased demand coming from patent-assertion entities (PAEs) whose main business is to acquire and assert patents. For example,

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<sup>6</sup> See Grindley and Teece (1997) for a discussion of broad cross-licensing practices. One example of a cross-license containing essential patents that fell apart at renegotiation is the deal between Motorola and Research in Motion (see *Motorola, Inc vs. Research in Motion, Ltd et al.*, U.S District Court Northern District of Texas, 3:08-CV-0317-G).

after negotiations between Nokia and Robert Bosch GmbH failed, Bosch sold several standards-related patents to a PAE called IPCom, who successfully asserted those patents in German courts. There is also a broad shift towards “open innovation” business models, where firms commercialize technology through out-licensing as opposed to manufacturing. Firms like Qualcomm, who develop new technology that becomes central to an industry standard, can earn substantial royalties from licensing their standards-related IP. The study by Simcoe, Graham and Feldman (2009) shows that when small firms (who appear to be a mix of PAEs and specialized technology developers) declare essential patents to an SSO, the probability of subsequent litigation increases significantly compared to essential patents declared by larger firms, who are more likely to be manufacturers.

Another cause for concern is the increasing importance of inter-operability, and particularly the push for standards to support the deployment of electronic health records and a “smart” electricity grid. New standards are clearly needed to coordinate the efforts of diverse vendors in responding to these potentially large market opportunities. However, given the highly inelastic consumer demand for health and energy services, it is not clear that intermediaries like hospitals or public utilities have the ability or incentive to be an active SSO participant or engage in protracted fights with sophisticated patent litigators if they can simply pass royalty costs on to consumers.

### **Private solutions**

Most SSOs take steps to mitigate the patent hold-up problem, typically by adopting intellectual property policies that impose certain obligations on members’ behavior during and after the standard setting process. Lemley (2002) surveyed these policies at a number of SSOs. Here, I discuss a few of their main features.

#### *Disclosure rules*

Many SSOs have rules that require members participating in technical deliberations to disclose relevant patents or pending patent applications. For instance, the patent

policy guidelines endorsed by the American National Standards Institute (ANSI 2011) encourage SSOs to adopt “procedures whereby one or more requests are made to participants for the disclosure of patents that may be required for use of standards in process.” Many SSOs also maintain a public repository of patent disclosures or letters of assurance, which can be searched by prospective implementers who wish to seek a license before committing to the standard.

In principle, disclosure allows SSO participants to evaluate trade-offs between technical quality and the expected cost of implementation. In practice, there are several reasons why the disclosure process may not work well. One problem is that disclosure rules rarely require firms to search for or disclose specific pieces of IP. As a consequence, many firms issue “generic” or “blanket” disclosures indicating that they hold essential patents, but without providing any publication numbers. Clearly, these disclosures provide little guidance to standards developers who are trying to understand what parts of a specification are actually covered by patents, or whether those patents are valid and enforceable. Simcoe (2005) suggests that one third of all disclosures made to a group of nine SSOs provide no reference to specific IP, with much higher rates of blanket disclosure at certain SSOs.

The logic of blanket disclosure is closely tied to the problem of patent notice. Given long pendency lags, and the widespread use of continuations and divisional applications to amend claims over time, it is often unclear whether a pending application will be essential at the time a standard is endorsed. The costs of locating essential patents can also be large for firms with sizable patent portfolios that participate in many SSOs. Of course, the switch to blanket disclosure does not actually reduce these search costs; it merely shifts them onto prospective implementers and other standards developers, who are arguably less informed.

Simply mandating disclosure specificity will not necessarily solve the problem of poor notice under blanket disclosure policies, since large patent holders can adopt a highly inclusive approach, e.g. claiming that nearly all of their patents are potentially



essential. For example, ETSI requires explicit disclosure and sometimes gets thousands of declared essential patents for a single project. If only a few of these patents are truly essential, implementers and standards developers face essentially the same search and discovery problem as under a blanket policy.

A second problem with SSOs' disclosure rules is that they do not guarantee timely information provision. Standards committees may take several years to agree on a specification. During that time, as consensus begins to emerge on key design parameters, firms will often begin to commit design and marketing resources to the nascent specification. While SSOs encourage participants to disclose patents as early as possible, there is nothing to prevent an opportunistic patent-holder from waiting until the last moment. At that point, if there is little chance that the standard will be redesigned, the patent-holder has managed to put themselves in a position to hold-up implementers without violating the letter of the SSOs disclosure policy.

Moreover, to an outside observer, these opportunistic delays will often be indistinguishable from "late" disclosures caused by last-minute changes to the standard that make a firm's previously irrelevant IP essential. Efforts to define "timely" disclosure would likely encounter strong resistance, given the practical difficulties of distinguishing benign from opportunistic delays.

While timing and specificity pose difficult problems for SSOs, disclosure policies remain a useful tool for their members. In particular, the disclosure process provides a place where firms can make unilateral licensing commitments (perhaps with an eye towards gaining acceptance of their technology). The disclosure process also provides a forum where patent-holders can place prospective implementers on notice that they expect to be paid. Finally, when SSOs provide a public repository of disclosures or letters of assurance, it simplifies the process of matching future implementers to key intellectual property owners.

Perhaps the best way to address the problems of disclosure timing and specificity would be through reforms to the underlying patent system. High quality patents

that issued more quickly, and whose evolving claims were easier to predict, would make it simpler for SSO participants to evaluate trade-offs among solutions with different cost-quality profiles on a forward-looking basis.

### *Licensing Commitments*

In addition to disclosure rules, many SSOs require participants to make commitments regarding the terms and conditions of any license they will offer for patents needed to implement a standard. A few SSOs ask for very specific licensing commitments. For instance, the World Wide Web Consortium (W3C) will only endorse technologies that can be implemented on a royalty-free basis, and the HDMI Consortium asks implementers to sign an “Adopters Agreement” and pay an annual fee of \$10,000 plus a royalty of \$0.15 per unit sold.<sup>7</sup> However, the most common policy is to require a commitment to license on “reasonable and non-discriminatory” (RAND) or “fair reasonable and non-discriminatory” (FRAND) terms.

Whether because of antitrust fears, or concerns that they will upset certain members, SSOs typically shy away from providing an explicit definition of RAND, leaving the matter to individual firms, and ultimately courts. As a consequence, firms often treat this commitment as merely a promise to enter licensing negotiations. There is nothing to prevent patent-holders from going beyond a RAND commitment, for instance by pledging to offer a royalty-free license. But aside from unilateral commitments, it is not clear that a RAND promise places any restrictions on prospective prices or licensing terms, aside from a ban on exclusivity.<sup>8</sup>

How then, should we interpret the RAND promise? Economists have suggested that a reasonable royalty will reflect the *ex ante* benefits of adopting a particular technology as the industry standard, but not the additional switching and

<sup>7</sup> The W3C patent policy is published at <http://www.w3.org/Consortium/Patent-Policy-20040205/> and the HDMI Adopters Agreement is published at <http://www.hdmi.org/manufacturer/terms.aspx> (both accessed July 8, 2011).

<sup>8</sup> While there is considerable debate over the meaning of RAND, it is clear that firms cannot void their RAND pledge by selling the patent. See *In the Matter of Negotiated Data Solutions LLC*, *FTC File No. 0510094*, for a discussion of efforts to circumvent SSO licensing commitments through patent sales.

coordination costs created by standard-setting process and the technology-specific investments it encourages (e.g. Swanson and Baumol 2005; Layne-Farrar et al 2007; Farrell et al 2007). But these proposals rarely specify how one might calculate a reasonable price after investments are sunk, or in settings with significant network effects and complementarities among component technologies. As for non-discrimination, firms clearly do not interpret this to mean uniform pricing for a stand-alone license to essential patents. Perhaps non-discrimination means that essential patent holders cannot offer an exclusive license? But if licensors are allowed to charge different rates to each licensee, and there is no cap on a reasonable price, it seems that licensors could offer *de facto* exclusivity, or at least substantial competitive advantage, without violating a FRAND commitment.

One approach to the “reasonable” prong of the RAND commitment is to treat it as a promise to forgo lost profits as the approach to calculating damages in patent infringement litigation. In its place, courts would presumably set reasonable royalty damages based on a hypothetical negotiation between a willing licensor and willing licensee. The U.S. Federal Trade Commission (FTC 2011) describes several difficulties with such an analysis, and suggests that courts may systematically overcompensate patent holders in applying the hypothetical negotiation framework. Here, I set aside the controversial question of excessive damages and highlight the economic importance of assuming that any hypothetical negotiation takes place before the selection and diffusion of the standard.

First, as emphasized by the economists cited above, an *ex ante* negotiation will compensate licensors for the benefits created by selecting their technology as the standard, but not the switching and coordination costs caused by implementers’ sunk investments. Second, in a hypothetical *ex ante* negotiation, there should be no presumption that the patents were known to be valid and infringed. Third, and perhaps most importantly, the existence of alternatives to the patented technology place an upper bound on a licensees’ willingness to pay. The last point is subtle in the standards context. It may be difficult to view technologies that look lousy *ex post*

as post as attractive *ex ante* substitutes, or to distinguish between a technology's innate benefits and the cumulative effect of sustained investment by a broad community of implementers. Moreover, a hypothetical licensee's *ex ante* willingness to pay will depend not only on the merits of the best available substitute (as in the case of a bilateral negotiation), but on the anticipated actions of other firms with respect to the nascent standard. Thus, courts may need to consider the price at which the substitute technology becomes a suitable choice for the pivotal SSO participant (i.e. the SSO member who casts the deciding vote) and not just the difference in *ex ante* willingness to pay of the defendant in a particular case. Despite these complexities, it is important to recognize that when there are close *ex ante* substitutes for a patented technology, a reasonable royalty may be very small.

Assuming the "reasonable" prong of RAND does refer to the method of computing infringement damages, SSOs could take several steps to improve the likelihood that courts understand these points, and reach economically sound conclusions when calculating reasonable royalty damages. One such step would be to clarify the meaning of RAND by explicitly defining "reasonable" as the price reached through *ex ante* negotiation between a willing licensor and willing licensee. Another useful step would be to clearly document cases where there was a conscious choice between competing solutions, and providing some indication of how the relative merits of the different approaches were viewed at the time.

Some observers take the view that RAND commitments not only commit patent holders to a particular damages rule, but also waive their right to seek injunctive relief against standards implements. For instance, Miller (2007) writes that, "by adopting a RAND policy... SSO participants... contract out of an injunction-backed property rule into a reasonable-royalty liability rule." While this is an interesting proposal, patent holders might reasonably object that without the threat of injunction it is very difficult to bring an obstinate infringer to the negotiating table. The matter is ripe for clarification from SSOs. But regardless of the relationship between RAND and injunctive relief, proper application of the hypothetical

negotiation framework should not rely on “comparable” licenses that were negotiated in the shadow of an injunction, since that threat would not be available to the patent holder in an *ex ante* world where the essentiality, validity and infringement of the patent are unknown.

While much has been written on the determination of reasonable royalties, the non-discrimination prong of a RAND commitment has received relatively little attention. One interpretation of ND might be that licenses will be made available at a uniform price. But outside of royalty-free licensing, it is hard to see how this would be practiced, since essential patents are often covered by broad cross-licenses whose terms vary from one deal to the next. Another interpretation of non-discrimination is that patentees may not adopt “divide and conquer” adoption-forcing strategies, such as an escalating royalty rate that guarantees early licensees a decisive cost advantage over later ones. A final interpretation of the ND requirement is that it prohibits exclusive licensing, though this would be redundant if the reasonable prong of RAND implies a willing licensor. Perhaps ND simply assures an easily pronounced acronym.

So far, courts have managed to avoid providing a clear interpretation of the RAND standard. The appeals court in *Broadcom v. Qualcomm* suggested that the fifteen *Georgia Pacific* factors provide a useful starting point.<sup>9</sup> However, those guidelines have little to say about how one could determine a reasonable price in settings with hundreds or thousands of complementary patents per product, and where firms make substantial irreversible investments to bring products to market before entering into licensing negotiations. Moreover, as the FTC’s report on the evolving IP marketplace (FTC 2011) highlights, the *Georgia Pacific* factors are only a list of evidentiary categories, and not a coherent analytical framework that can be used to calculate a reasonable royalty. In my view, the current ambiguity surrounding RAND commitments contributes to the high litigation rate of declared essential patents,

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<sup>9</sup> See *Broadcom Corp. v. Qualcomm, Inc.*, 501 F.3d 297; 2007.

making it reasonable for courts and policy-makers to push SSOs for more clarity regarding this key dimension of their intellectual property policies.

### *Ex Ante Negotiations*

One widely discussed alternative to RAND commitments is for patent-owners to actually negotiate specific licensing terms – including prices – before irreversible investments and coordination on a particular solution make substitute technologies less attractive. This is essentially the mechanism proposed by Swanson and Baumol (2005), Layne-Farrar et al (2007) and Farrell et al (2007) for determining a reasonable price.

In principle (and perhaps in practice), firms may conduct bilateral *ex ante* license negotiations outside of an SSO (see Herman, 2010). But when the outcome of any bilateral negotiation is confidential, it provides no information to other implementers about the terms that a particular patent-holder views as reasonable, and therefore induces less *ex ante* price competition between substitute technologies. For this reason, the recent policy discussion has focused on *ex ante* policies where patent holders publicly disclose a maximum royalty rate and set of most restrictive terms.

The main appeal of *ex ante* disclosure policies is that they mimic the hypothetical negotiation between a willing licensor and willing licensee that might take place before a standard is adopted. In particular, in *ex ante* negotiations a rational licensor would be unwilling to pay an unreasonable price, i.e. a price that exceeds the difference in surplus between adopting a preferred technology and the next best alternative (which could be an existing or as-yet undeveloped substitute or a decision to narrow the scope of the standard).

However, *ex ante* disclosure policies also have some weaknesses. The first one is widely recognized: price setting and group negotiations among product market competitors within an SSO raises the specter of antitrust law, particularly charges of

collusion. A second concern draws less attention: considering pricing requires a change of culture and organization of SSOs that may distract from their primary goal of developing technical standards. Finally, some argue that shifting to *ex ante* will reduce the incentive to participate, or that firms will be able to game the policy.

With regards to the first concern, are the SSOs' antitrust fears justified? There is in fact gathering support to have SSOs negotiate licensing fees simultaneously with determining a standard (e.g. Majoras, 2005). The US Department of Justice has issued Business Review Letters that endorse a policy of *ex ante* price disclosure at VITA (an SSO that promotes the VMEbus computer architecture) and the IEEE.<sup>10</sup> The VITA policy requires IP holders to commit to a "price cap" (i.e. a maximum royalty rate and most restrictive set of licensing terms), which can be amended downwards, while the IEEE policy allows firms to disclose their most restrictive licensing terms on a voluntary basis. Both policies continue to forbid direct negotiations over prices within the SSO.

So why do SSOs remain hesitant to allow *ex ante* negotiations? While Business Review Letters insulate SSOs against public lawsuits, there would no doubt be private antitrust suits in this context, and it remains to be seen whether courts will view *ex ante* rate setting as legal. For example, Golden Bridge sued the 3GPP for facilitating collusion after the firm disclosed a patent and began negotiating license agreements, only to find that 3GPP members rewrote the standard so as not to infringe Golden Bridge's patents. Similar claims of monopsony and group boycotts by SSO members were litigated in *Sony Electronics vs. Soundview Technologies* and *Addamax vs. Open Source Software Foundation*.<sup>11</sup> Farrell et al (2007) suggest that the economic merits of these claims are weak: the damage to innovation incentives from collective negotiations are no greater than when the innovator must negotiate with

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<sup>10</sup> These letters are available at <http://www.usdoj.gov/atr/public/busreview/219380.htm> and <http://www.justice.gov/atr/public/busreview/222978.htm> (accessed on October 19, 2010).

<sup>11</sup> *Golden Bridge, Inc. vs. Nokia, Inc.*, 416 F. Supp. 2d 525, 528 (E.D. Tex. 2006). *Sony Electronics Inc. vs. Soundview Technologies, Inc.*, 157 F. Supp. 2d 180, 185 (D. Conn 2001). *Addamax Corp. vs. Open Source Software Found.*, 888 F. Supp. 274, 278 (1995).

a single large user. Nevertheless, SSOs are understandably reluctant to incur the risk of litigation.

With regards to the second concern, standards are typically developed by engineers who lack the training and authority to consider prices. Business executives are certainly involved in SSOs from time to time. However, combining technical deliberations with royalty negotiations would presumably lead to significant changes in the ways that SSOs work and in who attends. Such changes would be costly and difficult, and not particularly welcome by many SSO participants. While it is difficult say how much weight should be placed on these concerns, they are clearly important.

A third concern with *ex ante* policies is that they might force patent-holders to price a product that no licensee actually wants. In particular, most ICT licenses cover a firm's entire patent portfolio, thereby ensuring a licensee's freedom to operate with respect to a particular counterparty. Firms rarely offer a narrow license that covers only the essential patents for a single standard.<sup>12</sup> However, in the absence of a stand-alone licensing option, it is hard to know whether current practice reflects the preference of licensees or licensors.

A final concern with *ex ante* policies is that they will be ineffective, or even harmful. In particular, firms might declare very high royalty rates to preserve flexibility in subsequent negotiations (essentially preserving the status quo) or stop participating in an SSO rather than commit to prices in advance. These arguments are not especially strong. While firms could certainly declare high maximum royalties under an *ex ante* policy, this would still remove some element of uncertainty. When combined with incentives to make timely disclosures, it is hard to see how mandatory *ex ante* disclosure would not lead to some price competition between substitute technologies.

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<sup>12</sup> [[Note on technically versus commercially essential patents.]]



Concerning participation, the main reason for a firm to quit an SSO that adopts an *ex ante* policy is that it expects to earn less royalty income. But if an *ex ante* process mimics the hypothetical negotiation that would lead to a reasonable price, this implies that the departing firm expected to collect unreasonable royalties under the RAND policy. In that case, what harm comes from having them outside the SSO? Arguably, the *ex ante* policy screens out firms who view RAND as an empty promise, and reduces the chance that they will end up holding truly essential patents. Ultimately, the impact of adopting an *ex ante* disclosure policy on SSO participation is an empirical question. While there are only a few cases to study, the W3C and VITA are two examples of SSOs that have strengthened their licensing requirements without suffering a catastrophic decline in membership.

#### *Other Policies*

While recent debates on SSO intellectual property rules have focused on RAND commitments and *ex ante* disclosure rules, there are many other possibilities. One alternative to holding up-front negotiations within SSOs is to encourage more price competition between them. For example, a number of standards consortia use a “Promoter-Adopter” model where a small group of founding members (Promoters) contribute the key technologies and agree to an explicit licensing regime before signing up implementers (Adopters). Standards developed using this approach include the USB 2.0 and HDMI specifications. In comparing *ex ante* disclosure policies to the Promoter-Adopter model, one can discern a trade-off between the procedural costs of combining technical and licensing negotiations inside a single body, and the possibility of increased fragmentation and coordination failure when substitute technologies are promoted by competing SSOs.

There are also several alternative policies that could be carried out within an SSO. For instance, Mark Lemley (2007) proposed several interesting extensions to *ex ante* negotiation. One option is to couple *ex ante* disclosure requirements with low “penalty default” royalty rates. Under this policy, the SSO would set a very low

default royalty rate (perhaps free) as the maximum allowable royalty for firms that failed to provide explicit pricing commitments or make timely disclosures.

One weakness of a RAND or *ex ante* policy with penalty defaults is that it does not address the royalty stacking problem: even with a low default rate, total royalties may add up when there are hundreds of declared essential patents and hundreds of standards per product. To address this issue, Lemley proposed that SSOs could adopt a step-down royalty procedure. Under this policy, an SSO could cap the total royalties associated with a standard and award a share to each essential patent or firm. These shares could decline as patents are added to the pool, and might be higher for those who disclose earlier. While this step-down procedure might not award the most royalties to the highest value patents, it would certainly provide an incentive for early disclosure, which would allow committees to make better-informed decisions about any trade-off between quality and implementation cost.

Finally, Rysman and Simcoe (2011) suggest an alternative patent policy that dispenses with both RAND commitments and *ex ante* negotiations. Their proposal of Non-Assertion After Specified Time (NAAST) would mimic the incentives of the underlying patent system by allowing patent-holders a period of unrestricted licensing (i.e. they would not be bound by RAND or any other commitment), but forcing them to give up all rights to assert essential patents after some pre-determined period of time. This policy would allow patent-holders to recoup their investments in innovation during the assertion phase, but provide freedom of access to implementers and innovators who wish to build on the standard after the non-assert phase begins. A major virtue of the NAAST policy is that it would be easy to adjudicate, since it does not rely on complex formulations for determining a reasonable price. It might also bring the effective patent term for essential patents into line with the length of ICT product life cycles. On the other hand, it is hard to know the appropriate length of the NAAST assertion period, or when it should commence.

Penalty defaults, step-down royalties and NAAST are not perfect solutions to the hold-up problem. Rather they illustrate the wide range of feasible options for SSO intellectual property policies. Given the many possible policies, one might ask why we currently observe relatively little variation, and whether we should expect competition between SSOs to lead towards the best possible set of IPR policies? I do not think we know the answer to these questions.

To be sure, many SSOs have tweaked and tightened their IP policies in the wake of Rambus and other major antitrust cases. There have been experiments with *ex ante* negotiation at VITA and the IEEE; the W3C switched to a royalty-free policy, and OASIS allows individual technical committees to decide on the most appropriate IPR policy. However, many SSOs continue to rely on RAND policies that provide little clarity about disclosure timing and specificity, or how courts could determine a reasonable price. For some SSOs that run into few patent disputes, sticking with RAND may be a pragmatic approach that reflects the costs of creating a new IP policy as well as antitrust concerns. On the other hand, even at SSOs like ETSI, which have been embroiled in a number of major patent disputes, efforts to move away from the RAND regime (e.g. by defining “timely” disclosure) have encountered strong resistance. Ultimately, it is not obvious whether competition among SSOs takes the form of developing more efficient rules and procedures, or of providing alternative venues that favor the interests of different constituencies. These issues deserve more research.

### **Public policy**

How can public policy support the emergence of private solutions to the problem of patent hold-up in industry standards? One role for public agencies is to provide a credible threat of discipline for firms that violate SSO policies. Standard setting organizations typically have very limited enforcement powers: while they can threaten to withdraw support for a standard, this happens infrequently, and will have little effect when the specification already has a large installed base. However, antitrust agencies have brought actions against Dell, Unocal, Rambus and others for

seeking to license patents that were not disclosed during the standard-setting process.<sup>13</sup> Simcoe (2005) shows that there was a substantial uptick in the number of patent disclosures following the Dell action in 1996. Thus, even if the terms of individual patent disclosures remain vague, these antitrust actions have arguably increased the information available to standards developers and implementers by making the enforcement of SSO policies credible.

Another productive step taken by antitrust agencies in the US and Europe has been to offer Business Review Letters and public statements encouraging SSOs to allow more *ex ante* price negotiation. In particular, allowing the VITA and IEEE *ex ante* disclosure policies to move forward clearly signals that regulators understand the pro-competitive potential of policies that lead to public price commitments. SSOs may still fear that *ex ante* policies will lead to private antitrust actions. This is a reasonable concern, particularly in the wake of the *Golden Bridge v. Nokia* ruling that group boycotts in SSO bargaining can be found *per se* illegal. However, statements by the DOJ and FTC suggest that conduct in *ex ante* price negotiations will typically be judged under a rule of reason standard, reflecting both the coordination benefits associated with joint technical decision making inside SSOs and the potential for *ex ante* negotiations to thwart patent hold-up.

A more controversial recommendation is that policy-makers nudge SSOs towards providing more explicit guidance on disclosure rules and licensing commitments as part of their IPR policies.<sup>14</sup> One way for policy-makers to encourage more clarity might be to indicate a preference for explicit IPR policies and procedures in government purchasing guidelines, such as OMB Circular A-119. The current guidelines indicate the voluntary consensus standards must “include provisions requiring [that] intellectual property [be made] available on a non-discriminatory,

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<sup>13</sup> See *Dell Computer Corp.*, 121 F.T.C. 616 (1996); *Union Oil Co. of Cal.*, FTC Docket No. 9305, and *Rambus, Inc.*, FTC Docket No. 9302.

<sup>14</sup> The *Rambus* court made several disparaging remarks about the lack of clarity in VITA’s IPR policies. However, my impression is that subsequent efforts at many SSOs have focused on clarifying procedural requirements as opposed to the substance of these rules.

royalty-free or reasonable royalty basis to all interested parties” and encourage agencies to use of voluntary standards wherever practical. But these guidelines say very little about the choice among competing private standards. When government agencies act as consumers, it would be quite reasonable for them to favor standards that involve more certainty and less risk of *ex post* patent hold-up. And since these purchasing guidelines leave agencies with considerable discretion, there is little risk that such a change would lead to excessive uniformity of SSO policies and procedures should vagueness be the optimal IPR policy for certain technologies or markets.

Finally, though it is outside the scope of this essay, hold-up problems could be mitigated through patent system reforms that reduce the myriad search and transaction costs that make markets for intellectual property function rather poorly in the ICT sector. In particular, the patent hold-up problem would disappear if it were practical for firms to identify relevant patents and take-out all of the necessary licenses before designing, building and marketing new products. This is far from the current reality. While private solutions such as SSOs and patent pools may provide a work-around to the problems of patent hold-up and royalty-stacking, this essay has highlighted some of the inherent costs, limitations and trade-offs of the primarily private approach.

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## EXHIBIT 12



*Approved by the IEEE-SA Board of Governors December 2009*

## IEEE-SA Standards Board Bylaws

The Institute of Electrical and Electronics Engineers, Inc.  
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# IEEE-SA Standards Board Bylaws

## 1. IEEE-SA Standards Board

The IEEE-SA Standards Board is established by the IEEE-SA Board of Governors according to clause 5.1 of the *IEEE Standards Association Operations Manual*. The details of its responsibilities beyond that specified in the *IEEE Standards Association Operations Manual* are stipulated by these bylaws, as supplemented by the *IEEE-SA Standards Board Operations Manual*.

The IEEE-SA Standards Board is responsible on an Institute-wide basis for

- a) Encouraging and coordinating the development of IEEE standards
- b) Reviewing all proposed IEEE standards to determine whether the proposed standards conform to the requirements established by the IEEE-SA Standards Board and whether consensus has been achieved for approval of the proposed standards

Matters of standards policy, financial oversight, new directions in standardization, and other standards-related activities in fields of interest to the Institute as stated in the *IEEE Constitution* are the responsibility of the IEEE-SA Board of Governors (BOG).

## **2. IEEE standards**

### **2.1 Role of IEEE Standards**

IEEE-SA develops and publishes standards that include but are not limited to definitions and terminology; methods of measurement and test; systems; products; technology; ratings structures; temperature limits and application guides; recommended practices; and safety. Rating and dimensional information included in an IEEE standard result from technical considerations. Rating information developed by other competent organizations may be included provided it is consistent with good engineering practice.

The approval and publication of an IEEE standard implies that the document represents a consensus of the parties who have participated in its development and review. Since every attempt is made to involve all interests in the activity, it can be presumed that the document represents a consensus of interests concerned with the scope of the standard. Consensus is established when, in the judgment of the IEEE-SA Standards Board, substantial agreement has been reached by directly and materially affected interest categories. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

### **2.2 Purpose of IEEE standardization**

IEEE standards provide a common ground for communication in some specific area of electrotechnology. They also provide criteria for measuring the acceptable performance of equipment or materials pertinent to the field of electrotechnology.

The purpose of the review by the IEEE-SA Standards Board is to ensure that IEEE standards represent a consensus of interests from those that are materially affected by these standards and that proper procedures have been followed during the development of these standards.

An IEEE standard gives an authoritative reference that is kept up to date through review at least every five years by the Sponsor responsible for its preparation. Alternatively, IEEE standards may be stabilized. These standards are considered for continued stabilization through review at least every ten years.

### 3. Governance

The policies, procedures, rules, and regulations by which the IEEE and IEEE-SA Standards Board activities are governed are embodied in six documents. The *IEEE Certificate of Incorporation* legally establishes the IEEE. The *IEEE Constitution*, which can be approved and amended only by the voting members of the IEEE, contains IEEE's fundamental objectives and organization. Implementation of the constitutional provisions, in specific organizational units and their policies, is contained in the *IEEE Bylaws*, which are approved and amended by the IEEE Board of Directors. The *IEEE Policies* contain more detailed statements of specific policies, objectives, and procedures that may be approved only by the IEEE Board of Directors. The *IEEE Standards Association Operations Manual* provides specific objectives and policies that relate to standards activities in the IEEE. The *IEEE Standards Association Operations Manual* is created and amended by the IEEE-SA BOG. The sixth document, the *IEEE-SA Standards Board Bylaws*, is published herewith. Its purpose is to provide specific policies that relate to the management and creation of approved IEEE standards. The *IEEE-SA Standards Board Bylaws* are created and amended by the IEEE-SA Standards Board, with final approval by the IEEE-SA BOG.

The precedence of these documents should be remembered by all those engaged in IEEE management duties. The *IEEE Bylaws* shall not be in conflict with the New York Not-For-Profit Corporation Law, the *IEEE Certificate of Incorporation*, or the *IEEE Constitution*. The *IEEE Policies* must conform to the provisions of all of these documents. Accordingly, the *IEEE Standards Association Operations Manual* shall conform to and not conflict with the provisions of the IEEE governing documents cited above. The *IEEE-SA Standards Board Bylaws* shall conform to the policies of the *IEEE Standards Association Operations Manual*. Questions of procedure or interpretation shall be addressed to the Managing Director, Standards.

## 4. IEEE-SA Standards Board organization

### 4.1 Membership

As stated in the *IEEE Standards Association Operations Manual*, the IEEE-SA Standards Board shall consist of no fewer than 18 nor more than 26 voting members, who shall be of Member or higher grade of the IEEE and members of the IEEE Standards Association, including a chair, vice chair, and the most recent past chair available to serve. Voting members of the IEEE-SA Standards Board shall be appointed by the IEEE-SA BOG. In addition, a representative appointed by the IEEE Technical Activities Board (TAB) shall be a voting member. In addition, the IEEE-SA Standards Board may include nonvoting participants as described below:

- Liaison representatives to provide coordination and communication between the IEEE-SA Standards Board and other IEEE entities, as well as other organizations involved in standards activities.
- Members emeriti appointed for life by the IEEE-SA Standards Board and ratified by the IEEE-SA BOG based on long years of prior distinguished service on the IEEE Standards Board and its committees. Only those members emeriti currently named to this position as of 31 December 1997 shall serve on the IEEE-SA Standards Board.

#### 4.1.1 Officers

- a) *Chair*: The Chair of the IEEE-SA Standards Board shall be appointed for a term of one year by the IEEE-SA BOG.
- b) *Vice Chair*: The Vice Chair of the IEEE-SA Standards Board shall be appointed by the IEEE-SA Standards Board from among the voting members for a term of one year
- c) *Past Chair*: The most recent Past Chair of the IEEE-SA Standards Board available to serve shall be an officer of the IEEE-SA Standards Board.
- d) *Secretary*: The Managing Director of Standards, a member of the IEEE staff as designated by the IEEE Executive Director, is the Secretary of the IEEE-SA Standards Board. The Secretary shall serve *ex officio* without vote.

#### 4.1.2 Liaison representatives

The following persons serve as nonvoting (unless already voting members) liaison representatives to the IEEE-SA Standards Board and its standing committees to assist in coordinating standardization work with their respective organizations:

- a) The chair of each IEEE Standards Coordinating Committee (SCC) appointed by the IEEE-SA Standards Board.
- b) Representatives of IEEE Societies and Councils (and their Technical Committees), appointed by the Presidents or Chairs of these bodies. Sponsor Committees may also designate liaison representatives where committee standards activity indicates the need for representation.
- c) Liaison representatives designated by other major IEEE Boards.
- d) Such other liaison representatives as the IEEE-SA Standards Board may authorize.

The responsibilities of the liaison representatives are given in the *IEEE-SA Standards Board Operations Manual*.

#### **4.1.3 SCC Coordinator**

The SCC Coordinator shall ensure oversight of the SCCs and shall facilitate the work of the SCCs. The SCC Coordinator shall be appointed by the Chair of the Standards Board for a term of one year.

#### **4.1.4 Tenure**

Members of the IEEE-SA Standards Board may serve up to three consecutive one-year terms, except that chairs of standing committees or members of the Administrative Committee may be appointed to additional terms to provide experience and continuity.

### **4.2 Standing committees of the IEEE-SA Standards Board**

All members of the standing committees of the IEEE-SA Standards Board shall be members of the IEEE Standards Association, and shall act in accordance with IEEE Standards policies and procedures, *IEEE Policies* including, but not limited to, Section 9.8 on Conflict of Interest, and the IEEE Code of Ethics.

#### **4.2.1 Procedures Committee (ProCom)**

##### **4.2.1.1 Scope**

This committee shall be responsible for recommending to the IEEE-SA Standards Board improvements and changes in its bylaws, procedures, and manuals to promote efficient discharge of responsibilities by the IEEE-SA Standards Board and its committees.

##### **4.2.1.2 Organization**

This committee shall be comprised of at least six members. The chair and other members of the committee shall be members of the IEEE-SA Standards Board and shall be appointed by the Chair of the IEEE-SA Standards Board for a term of one year.

#### **4.2.2 New Standards Committee (NesCom)**

##### **4.2.2.1 Scope**

This committee shall be responsible for ensuring that proposed standards projects are within the scope and purpose of the IEEE, that standards projects are assigned to the proper Society or other organizational body, and that interested parties are appropriately represented in the development of IEEE standards. The committee shall examine Project Authorization Requests (PARs) and make recommendations to the IEEE-SA Standards Board regarding their approval.

##### **4.2.2.2 Organization**

This committee shall be comprised of at least 10 but not more than 15 IEEE members, at least four of whom, including the chair, shall be voting members of the IEEE-SA Standards Board. The chair and other members of the committee shall be appointed by the Chair of the IEEE-SA Standards Board for a term of one year. In making nominations, the nominations committee shall give consideration to attaining membership from various IEEE Technical Divisions.

IEEE-SA Standards Board members not appointed to NesCom may serve as *ex officio* members without voting privileges.

#### **4.2.3 Standards Review Committee (RevCom)**

##### **4.2.3.1 Scope**

This committee shall be responsible for reviewing proposals for the approval of new and revised standards and for the reaffirmation or withdrawal of existing standards to ensure that the proposals represent a consensus of the members of the official IEEE Sponsor balloting group. The committee shall routinely examine submittals to ensure that all applicable requirements of the *IEEE-SA Standards Board Operations Manual* have been met and make recommendations to the IEEE-SA Standards Board regarding their approval.

##### **4.2.3.2 Organization**

This committee shall be comprised of at least 12 but not more than 15 members, at least three of whom, including the chair, shall be voting members of the IEEE-SA Standards Board. The chair and other members of the committee shall be appointed by the Chair of the IEEE-SA Standards Board for a term of one year. In making nominations, the nominations committee shall give consideration to attaining membership from various IEEE Technical Divisions.

IEEE-SA Standards Board members not appointed to RevCom may serve as *ex officio* members without voting privileges.

#### **4.2.4 Audit Committee (AudCom)**

##### **4.2.4.1 Scope**

This committee shall provide oversight of the procedures used in the standards-development activities of IEEE Standards Sponsors as defined by 5.2.2 and review of the procedures used by the Accredited Standards Committees for whom the IEEE serves as (co-)secretariat.

##### **4.2.4.2 Organization**

This committee shall be comprised of at least five members. Five of the committee members, including the chair, shall be current or former members of the IEEE-SA Standards Board. The chair and other members of the committee shall be appointed by the Chair of the IEEE-SA Standards Board for a term of one year.

#### **4.2.5 Patent Committee (PatCom)**

##### **4.2.5.1 Scope**

This committee shall provide oversight for the use of any patents and patent information in IEEE standards. This committee shall review any patent information submitted to the IEEE Standards Department to determine conformity with patent procedures and guidelines.

##### **4.2.5.2 Organization**

This committee shall be comprised of at least four but not more than six voting members. A member of the IEEE Standards staff, as designated by the Managing Director of Standards Activities, shall be an *ex officio*, nonvoting member. The chair and additional voting members of the committee shall be voting members of the IEEE-SA Standards Board or the IEEE-SA Board of Governors and shall be appointed by the Chair of the IEEE-SA Standards Board for a term of one year.



#### **4.2.6 Administrative Committee (AdCom)**

The Administrative Committee shall act for the IEEE-SA Standards Board between meetings and make recommendations to the IEEE-SA Standards Board for its disposition at regular meetings. AdCom shall comprise the officers of the IEEE-SA Standards Board, the chairs of each standing committee of the IEEE-SA Standards Board, and the SCC Coordinator. The Chair of the IEEE-SA Standards Board shall be the chair of AdCom.

### **4.3 Other committees and bodies**

#### **4.3.1 Standards Coordinating Committees (SCCs)**

Proposed standards are normally developed in the technical committees of the IEEE Societies. There are occasions when the scope of a standards activity is too broad to be encompassed in a single Society, or a Society may find itself in a position where it is unable to carry out the work needed to meet an identified need. In such instances, the IEEE-SA Standards Board shall establish its own committees to perform the required functions. These committees shall be known as Standards Coordinating Committees (SCCs) and shall report to the IEEE-SA Standards Board.

There shall be two types of SCCs. The first (type 1) shall serve as a forum for the exchange of information between and among standards-developing activities of the IEEE. (Opportunities for sharing information about standards projects, trends, and Society directions will serve to minimize duplication among programs and will enhance the content of standards of interest to more than one Society.)

This type of SCC shall not develop standards. If this type of SCC is to take on a standards-development role, it shall apply for SCC type 2 status (see subclause 4.3.2 of the *IEEE-SA Standards Board Operations Manual*).

The second type of SCC (type 2) shall act as Sponsor for individual standards projects, in addition to having the coordination responsibilities of a type 1 SCC. It shall meet all the requirements of IEEE sponsorship (including clause 5 of the *IEEE-SA Standards Board Operations Manual*).

For information on the formation of SCCs, see 4.3 in the *IEEE-SA Standards Board Operations Manual*. For information on the organization of SCCs, see 4.4 in the *IEEE-SA Standards Board Operations Manual*.

## **5. IEEE-SA Standards Board procedures and responsibilities**

### **5.1 Transaction of business**

Regular meetings of the IEEE-SA Standards Board shall be held quarterly, in accordance with a schedule approved at the first meeting of each year. Special meetings may be called, when deemed necessary, by the Chair or at the request of five members.

Unless otherwise provided in the *IEEE Certificate of Incorporation*, the *IEEE Constitution*, the *IEEE Bylaws*, or the New York Not-For-Profit Corporation Law, the vote of a majority of the voting members of the IEEE-SA Standards Board present at the time of the vote, if a quorum is present at such a time, shall be the act of the IEEE-SA Standards Board.

Approval of proposed IEEE standards, or proposed withdrawal of such standards, shall require affirmative votes by at least 75% of the voting members present at the time of the vote, if a quorum is present. Except as otherwise specified in these bylaws, meetings of the IEEE-SA Standards Board shall be run in accordance with the parliamentary procedures of *Robert's Rules of Order* (latest edition).

### **5.2 Standards-development process**

#### **5.2.1 Participation in IEEE standards development**

Participants in the IEEE standards development individual process shall act based on their qualifications and experience. Entity representative participants in the IEEE standards development entity process are appointed by an entity to represent that entity and act on its behalf. Such representatives may participate in IEEE standards development activities and take action based upon instruction from the entity for which they have been appointed as an entity representative.

While participating in IEEE standards development activities, all participants, including but not limited to, individuals, entity representatives, entity members, entities participating directly in the entity process, and entities participating indirectly in the individual process shall act in accordance with all applicable laws (nation-based and international), the IEEE Code of Ethics, and with IEEE Standards policies and procedures. Participants in IEEE standards development who are authenticated into any IEEE-SA database shall acknowledge the Obligations for Participation and Code of Ethics.

Participants on standards committees or working groups with governance authority or the authority to enter into a financial transaction with another party shall also act in accordance with *IEEE Policies* Section 9.8 on Conflict of Interest.

IEEE Standards Sponsor chairs and Sponsor liaison representatives shall be members of IEEE-SA and shall also be either IEEE members of any grade or IEEE affiliates.

The IEEE-SA shall maintain the authoritative database of participants in the development of standards. Such database shall be maintained by the Secretary of the IEEE-SA Standards Board.

##### **5.2.1.1 Membership requirements for standards developed under the individual method**

Chairs of IEEE standards working groups developing standards under the individual method shall be members of IEEE-SA and shall also be either IEEE members of any grade or IEEE affiliates. Designees (those designated to manage the Sponsor ballot) in the IEEE Standards Sponsor individual ballot process shall be members of IEEE-SA and shall also be either IEEE members of any grade or IEEE affiliates.

### **5.2.1.2 Membership requirements for standards developed under the entity method**

Chairs of IEEE standards working groups developing standards under the entity method shall be representatives of entity IEEE-SA members. Designees (those designated to manage the Sponsor ballot) in the IEEE Standards Sponsor entity ballot process shall be representatives of entity IEEE-SA members.

Every entity observing a project within an IEEE-SA entity standards working group is required to be an Entity Member of the IEEE-SA, and only Advanced Entity Members can contribute and hold voting privileges. Entity nonmembers may observe at one IEEE-SA entity standards working group meeting per project.

Each entity project shall have at least three voting participants in good standing to maintain its validity.

### **5.2.1.3 Dominance**

The standards development process shall not be dominated by any single interest category, individual, or organization.

Dominance is normally defined as the exercise of authority, leadership, or influence by reason of superior leverage, strength, or representation to the exclusion of fair and equitable consideration of other viewpoints. Dominance can also be defined as the exercise of authority, leadership, or influence by reason of sufficient leverage, strength, or representation to hinder the progress of the standards development activity. Such dominance is contrary to open and fair participation by all interested parties and is unacceptable.

If evidence of dominance exists, corrective action shall be initiated. If the Sponsor's official P&P contain corrective action(s), the Sponsor shall implement such action(s) and promptly notify the IEEE-SA Standards Board. If the Sponsor's official P&P do not contain corrective actions, the Sponsor shall initiate corrective action(s), but only after such action(s) have been approved by the IEEE-SA Standards Board.

In the absence of effective corrective action(s) by the Sponsor, the IEEE-SA Standards Board shall implement either the corrective action specified in 5.2.1.3.1 or, at its discretion, an alternative corrective action [e.g., withdrawal of the PAR, limiting the number of voting members, one vote per organization, etc.]. The IEEE-SA Standards Board may impose further corrective action(s) if previous corrective action(s) prove to be insufficient.

#### **5.2.1.3.1 Default corrective action**

##### *Fees for committee voting membership*

The IEEE-SA Standards Board shall instruct the Sponsor to implement an organization fee for any individual wishing to maintain voting rights in the standards development committee. Frequency of collection and duration of voting rights covered by collected fees shall be decided by the IEEE-SA Standards Board, which shall work in conjunction with the Sponsor. An individual's status as representing an organization shall be based on self-disclosure of affiliation in compliance with the IEEE-SA policy on Disclosure of Affiliation and on other information that may be available to the IEEE-SA Standards Board and the Sponsor.

All fees collected shall be forwarded to the IEEE Standards Association and are non-refundable.

This corrective action shall remain in force until withdrawn or amended by the IEEE-SA Standards Board.

**5.2.1.4 Openness**

Openness is defined as the quality of being not restricted to a particular type or category of participants. All meetings involving standards development shall be open to all interested parties.

**5.2.1.5 Disclosure of affiliation**

Every member and participant in a working group, Sponsor ballot, or other standards development activity shall disclose his or her affiliation. An individual is deemed "affiliated" with any individual or entity that has been, or will be, financially or materially supporting that individual's participation in a particular IEEE standards activity. This includes, but is not limited to, his or her employer and any individual or entity that has or will have, either directly or indirectly, requested, paid for, or otherwise sponsored his or her participation. Failure to disclose every such affiliation may result in complete or partial loss of rights to participate in IEEE-SA activities. An individual is not excused from compliance with this policy by reason of any claim of a conflicting obligation (whether contractual or otherwise) that prohibits disclosure of affiliation.

A person who believes that a participant's disclosure is materially incomplete or incorrect should report that fact to the Secretary of the IEEE-SA Standards Board and the appropriate Sponsor(s).

**5.2.2 Sponsor**

A Sponsor shall be made up of any of the categories of membership described in IEEE Bylaw I-403. This Sponsor shall have a professed interest in the development of standards (either by direct participation or by the process of review) in technological areas that fall under the general scope of interest to the IEEE.

All IEEE standards development shall be based on projects that have been approved by the IEEE-SA Standards Board, and each project shall be the responsibility of a Sponsor. Sponsors of IEEE standards projects are committees that are responsible for the development and coordination of the standards project and the maintenance of the standard after approval of the standard by the IEEE-SA Standards Board.

The Sponsor shall be one of the following:

- a) A Technical Committee within an IEEE Society/Council
- b) A Standards Committee or Standards Coordinating Committee of an IEEE Society/Council
- c) A Standards Coordinating Committee established by the IEEE-SA Standards Board
- d) A Standards Subcommittee organized by or reporting to one of the above
- e) Other organizations as recommended by the IEEE-SA Standards Board and approved by the IEEE-SA BOG

The IEEE-SA Standards Board is not a Sponsor, but provides oversight and guidance to assist Sponsors when necessary.

**5.2.2.1 Creation of Sponsors**

Sponsors formed under rule (d) in 5.2.2 shall be officially recognized by the IEEE-SA Standards Board only after a 75% approval by the creating committee. Once formed, Sponsors automatically assume duties according to 5.1 of the *IEEE-SA Standards Board Operations Manual*.

**5.2.2.2 Sponsor responsibility/accountability**

The Sponsor accepts responsibility for oversight of any of its assigned standards, including overseeing coordination and balloting.

When the breadth of interest in a standard is great enough so that more than one technical committee wishes to have a role in its sponsorship, a joint committee of the two or more interested committees may be formed to sponsor the standard jointly. That joint committee, whose membership shall be determined by mutual agreement, shall assume all of the duties of the Sponsor (see 5.1.2 of the *IEEE-SA Standards Board Operations Manual*).

Changes in sponsorship of projects shall be approved by the IEEE-SA Standards Board.

#### **5.2.2.3 Sponsor balloting group**

Potential dominance in Sponsor ballots as evidenced by an unduly high proportion of individuals employed by or affiliated with a single entity or from a particular balloting classification is unacceptable, counter to open and fair participation by all interested parties, and deprecated by the IEEE-SA Standards Board. All individuals joining a ballot group shall declare their employer and affiliation (see subclause 5.3.3.1 of the *IEEE-SA Standards Board Operations Manual*). The Sponsor shall review the ballot group for balance and possible dominance. If it is determined that the ballot group may be dominated (see 5.2.1.3), the Sponsor shall recommend remedial actions to the IEEE-SA Standards Board to ensure a fair and open ballot. The IEEE-SA Standards Board may also take action independent of any Sponsor recommendation.

The balloting group shall consist of persons who are members of the IEEE-SA and non-IEEE-SA members. A person is an individual or entity. An entity can be any for-profit or not-for-profit enterprise, as defined in IEEE Bylaw I-403. In addition, with the approval of the IEEE-SA Standards Board, invited individual experts who are non-IEEE-SA members may participate in ballots of proposed IEEE standards.

A single type of balloting group for a standard, based on the type of sponsorship, shall be established at the time of PAR approval and officially approved prior to the formation of a balloting group. A statement of the type of balloting membership to be used shall be included in all versions of the draft standard and the final approved standard.

#### **5.2.3 Project authorization**

In order to avoid duplication, provide for effective management of overall efforts, and expedite approval of final documents, all requests for an initiation of a standards project, in the form of a PAR, shall be approved by the IEEE-SA Standards Board. The IEEE-SA Standards Board has assigned to NesCom the preliminary review of PARs and the responsibility for recommending final approval to the Board.

Sponsors are required to submit a PAR at the earliest opportunity when a standards project is contemplated or work is started. The Secretary of the IEEE-SA Standards Board shall submit PARs to NesCom for approval in accordance with its procedures. Unless specifically authorized by the IEEE-SA Standards Board, no proposed standard or revision shall be considered by RevCom without prior approval of the project by the IEEE-SA Standards Board. The lifetime of a PAR shall be four years.

#### **5.2.4 Final review and approval to publish**

All IEEE standards shall be approved by the IEEE-SA Standards Board prior to publication. The IEEE-SA Standards Board has assigned to RevCom the review of standards submittals and the responsibility for recommending final approval to the IEEE-SA Standards Board. Approval by the IEEE-SA Standards Board indicates that the requirements of the *IEEE-SA Standards Board Operations Manual* and these bylaws have been satisfied and, specifically, that the final results of the ballot and statements submitted by other coordinating bodies who participated in the development of the standard indicate that consensus has been

achieved and unresolved negative ballots have been considered together with reasons why the comments could not be resolved.

### 5.2.5 Notification of action on standards

Following each meeting of the IEEE-SA Standards Board, the IEEE Standards Department shall issue a statement, available to all interested parties, which shall detail the actions taken at the last meeting of the IEEE-SA Standards Board on approval, reaffirmation, stabilization, and withdrawal of standards documents and authorization of new standards projects. This may be in the form of the minutes of the IEEE-SA Standards Board meeting.

## 5.3 Review cycles

All IEEE standards should be reviewed as often as new information is available or in accordance with the established cycle set by the IEEE-SA Standards Board, but no later than five years from the date of publication or, in the instance of stabilized standards, ten years from the initial approval or last revision or amendment. When an IEEE standard has been in effect for four years, the Secretary of the IEEE-SA Standards Board shall notify the standards liaison representative of the Sponsor that the standard must be reviewed for a maintenance action within the next year. The entire document shall be reviewed; amendments cannot be substituted for the five-year review.

The Sponsor has the option of

- a) Reaffirmation
- b) Revision
- c) Withdrawal
- d) Stabilization

## 5.4 Appeals

Persons who have directly and materially affected interests and who have been, or could reasonably be expected to be, adversely affected by a standard within the IEEE's jurisdiction, or by the lack of action in any part of the IEEE standardization process, shall have the right to appeal procedural actions or inactions, provided that the appellant shall have first exhausted the appeals procedures of any relevant subordinate committee or body before filing an appeal with the IEEE-SA Standards Board.

All technical decisions shall be made at or below the Sponsor level and the IEEE-SA Standards Board shall not consider appeals of technical decisions based on technical grounds. Any person dissatisfied with a technical decision shall follow the procedures of the body that has made the decision and that body's Sponsor, including, but not limited to, making a technical comment during the applicable comment submission period.

The IEEE-SA Standards Board shall not consider any claim that is either based solely on ethical considerations or that does not seek to amend or reverse a decision of a lower body relating to the development or approval of a standard. The appellant shall be advised to bring such claims to the attention of the IEEE Ethics and Member Conduct Committee or the IEEE-SA Standards Conduct Committee, as appropriate.

Further instructions concerning appeals procedure can be found in subclause 5.8 of the *IEEE-SA Standards Board Operations Manual*.

## 5.5 Interpretations

While it is always the intent of standards-developing committees to use language that is so clear that it is unnecessary to explain or amplify the original intent of the committee, occasionally questions arise regarding the meaning of portions of standards as they relate to specific applications.

Questions relating to such interpretations require review and evaluation by a balance of committee interests. No single officer or member of an IEEE Sponsor or subgroup thereof shall provide a written or verbal opinion concerning any portion of the text of an IEEE standards document or an American National Standard developed under IEEE secretariat, unless that opinion has first been subjected to consideration by an interpretations subgroup that represents all interested parties on the committee. The actions to be taken shall be as specified in subclause 5.9 of the *IEEE-SA Standards Board Operations Manual*.



## 6. Patents

### 6.1 Definitions

The following terms, when capitalized, have the following meanings:

*“Accepted Letter of Assurance”* and *“Accepted LOA”* shall mean a Letter of Assurance that the IEEE-SA has determined is complete in all material respects and has been posted to the IEEE-SA web site.

*“Affiliate”* shall mean an entity that directly or indirectly, through one or more intermediaries, controls the Submitter, is controlled by the Submitter, or is under common control with the Submitter. For the purposes of this definition, the term “control” and its derivatives, with respect to for-profit entities, means the legal, beneficial or equitable ownership, directly or indirectly, of more than fifty percent (50%) of the capital stock (or other ownership interest, if not a corporation) of an entity ordinarily having voting rights. “Control” and its derivatives, with respect to nonprofit entities, means the power to elect or appoint more than fifty percent (50%) of the Board of Directors of an entity.

*“Blanket Letter of Assurance”* shall mean a Letter of Assurance that applies to all Essential Patent Claims for which a Submitter may currently or in the future (except as otherwise provided for in these Bylaws and in the *IEEE-SA Standards Board Operations Manual*) have the ability to license.

*“Enabling Technology”* shall mean any technology that may be necessary to make or use any product or portion thereof that complies with the [Proposed] IEEE Standard but is neither explicitly required by nor expressly set forth in the [Proposed] IEEE Standard (e.g., semiconductor manufacturing technology, compiler technology, object-oriented technology, basic operating system technology, and the like).

*“Essential Patent Claim”* shall mean any Patent Claim the use of which was necessary to create a compliant implementation of either mandatory or optional portions of the normative clauses of the [Proposed] IEEE Standard when, at the time of the [Proposed] IEEE Standard’s approval, there was no commercially and technically feasible non-infringing alternative. An Essential Patent Claim does not include any Patent Claim that was essential only for Enabling Technology or any claim other than that set forth above even if contained in the same patent as the Essential Patent Claim.

*“Letter of Assurance”* and *“LOA”* shall mean a document, including any attachments, stating the Submitter’s position regarding ownership, enforcement, or licensing of Essential Patent Claims for a specifically referenced IEEE Standard, submitted in a form acceptable to the IEEE-SA.

*“Patent Claim(s)”* shall mean one or more claims in issued patent(s) or pending patent application(s).

*“Reasonable and Good Faith Inquiry”* includes, but is not limited to, a Submitter using reasonable efforts to identify and contact those individuals who are from, employed by, or otherwise represent the Submitter and who are known to the Submitter to be current or past participants in the development process of the [Proposed] IEEE Standard identified in a Letter of Assurance, including, but not limited to, participation in a Sponsor Ballot or Working Group. If the Submitter did not or does not have any participants, then a Reasonable and Good Faith Inquiry may include, but is not limited to, the Submitter using reasonable efforts to contact individuals who are from, employed by, or represent the Submitter and who the Submitter believes are most likely to have knowledge about the technology covered by the [Proposed] IEEE Standard.

*“Statement of Encumbrance”* shall mean a specific reference to an Accepted LOA or a general statement in the transfer or assignment agreement that the Patent Claim(s) being transferred or assigned are subject to any encumbrances that may exist as of the effective date of such agreement. An Accepted LOA is an encumbrance.



"*Submitter*" when used in reference to a Letter of Assurance shall mean an individual or an organization that provides a completed Letter of Assurance. A Submitter may or may not hold Essential Patent Claims.

## 6.2 Policy

IEEE standards may be drafted in terms that include the use of Essential Patent Claims. If the IEEE receives notice that a [Proposed] IEEE Standard may require the use of a potential Essential Patent Claim, the IEEE shall request licensing assurance, on the IEEE Standards Board approved Letter of Assurance form, from the patent holder or patent applicant. The IEEE shall request this assurance without coercion.

The Submitter of the Letter of Assurance may, after Reasonable and Good Faith Inquiry, indicate it is not aware of any Patent Claims that the Submitter may own, control, or have the ability to license that might be or become Essential Patent Claims. If the patent holder or patent applicant provides an assurance, it should do so as soon as reasonably feasible in the standards development process once the PAR is approved by the IEEE-SA Standards Board. This assurance shall be provided prior to the Standards Board's approval of the standard. This assurance shall be provided prior to a reaffirmation/stabilization if the IEEE receives notice of a potential Essential Patent Claim after the standard's approval or a prior reaffirmation/stabilization. An asserted potential Essential Patent Claim for which an assurance cannot be obtained (e.g., a Letter of Assurance is not provided or the Letter of Assurance indicates that assurance is not being provided) shall be referred to the Patent Committee.

A Letter of Assurance shall be either:

- a) A general disclaimer to the effect that the Submitter without conditions will not enforce any present or future Essential Patent Claims against any person or entity making, using, selling, offering to sell, importing, distributing, or implementing a compliant implementation of the standard; or
- b) A statement that a license for a compliant implementation of the standard will be made available to an unrestricted number of applicants on a worldwide basis without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination. At its sole option, the Submitter may provide with its assurance any of the following: (i) a not-to-exceed license fee or rate commitment, (ii) a sample license agreement, or (iii) one or more material licensing terms.

Copies of an Accepted LOA may be provided to the working group, but shall not be discussed, at any standards working group meeting.

The Submitter and all Affiliates (other than those Affiliates excluded in a Letter of Assurance) shall not assign or otherwise transfer any rights in any Essential Patent Claims that are the subject of such Letter of Assurance that they hold, control, or have the ability to license with the intent of circumventing or negating any of the representations and commitments made in such Letter of Assurance.

The Submitter of a Letter of Assurance shall agree (a) to provide notice of a Letter of Assurance either through a Statement of Encumbrance or by binding any assignee or transferee to the terms of such Letter of Assurance; and (b) to require its assignee or transferee to (i) agree to similarly provide such notice and (ii) to bind its assignees or transferees to agree to provide such notice as described in (a) and (b).

This assurance shall apply to the Submitter and its Affiliates except those Affiliates the Submitter specifically excludes on the relevant Letter of Assurance.

If, after providing a Letter of Assurance to the IEEE, the Submitter becomes aware of additional Patent Claim(s) not already covered by an existing Letter of Assurance that are owned, controlled, or licensable by

the Submitter that may be or become Essential Patent Claim(s) for the same IEEE Standard but are not the subject of an existing Letter of Assurance, then such Submitter shall submit a Letter of Assurance stating its position regarding enforcement or licensing of such Patent Claims. For the purposes of this commitment, the Submitter is deemed to be aware if any of the following individuals who are from, employed by, or otherwise represent the Submitter have personal knowledge of additional potential Essential Patent Claims, owned or controlled by the Submitter, related to a [Proposed] IEEE Standard and not already the subject of a previously submitted Letter of Assurance. (a) past or present participants in the development of the [Proposed] IEEE Standard, or (b) the individual executing the previously submitted Letter of Assurance.

The assurance is irrevocable once submitted and accepted and shall apply, at a minimum, from the date of the standard's approval to the date of the standard's withdrawal.

The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of those Patent Claims, or for determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory.

Nothing in this policy shall be interpreted as giving rise to a duty to conduct a patent search. No license is implied by the submission of a Letter of Assurance.

In order for IEEE's patent policy to function efficiently, individuals participating in the standards development process: (a) shall inform the IEEE (or cause the IEEE to be informed) of the holder of any potential Essential Patent Claims of which they are personally aware and that are not already the subject of an existing Letter of Assurance, owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents; and (b) should inform the IEEE (or cause the IEEE to be informed) of any other holders of such potential Essential Patent Claims that are not already the subject of an existing Letter of Assurance.

## 7. Copyright

All contributions to IEEE standards development (whether for an individual or entity standard) shall meet the requirements outlined in this clause.

### 7.1 Definitions

The following terms, when capitalized, have the following meanings:

*“Public Domain”* shall mean material that is no longer under copyright protection or did not meet the requirements for copyright protection.

*“Published”* shall mean material for which a claim of copyright is apparent (e.g., the presence of the copyright symbol ©; an explicit statement of copyright ownership or intellectual property rights, stated permission to use text; a text reference that indicates the insertion of text excerpted from a copyrighted work; or a visual indication of an excerpt from another work, such as indented text).

*“Work Product”* shall mean the compilation of or collective work of all participants (e.g., a draft standard; the final approved standard).

### 7.2 Policy

The IEEE owns the copyright in all Work Products.

Participants are solely responsible for determining whether disclosure of any contributions that they submit to the IEEE requires the prior consent of other parties and, if so, to obtain it.

#### 7.2.1 Contributions from previously Published sources

All contributions from previously Published sources that are not Public Domain shall be accompanied by a Copyright Permission Form that is completed by the copyright owner, or by a person with the authority or right to grant copyright permission. The Copyright Permission Form shall outline the specific material being used and the planned context for its usage in the IEEE standard.

#### 7.2.2 Contributions not previously Published

For any contribution that has not been previously Published, and that is not Public Domain:

- a) The IEEE has the non-exclusive, irrevocable, royalty-free, worldwide rights (i.e., a license) to use the contribution in connection with the standards project for which the contribution was made.
- b) Upon approval of the standard, the IEEE has the right to exploit and grant permission to use the standard's content derived from the contribution in any format or media without restriction.

Copyright ownership of the original contribution is not transferred or assigned to the IEEE.

## **8. Modifications to the *IEEE-SA Standards Board Bylaws***

Proposed modifications to these bylaws may be submitted to the IEEE-SA Standards Board Procedures Committee (ProCom) for its consideration. Proposed modifications that have been agreed to by ProCom shall be submitted to the IEEE-SA Standards Board for recommendation to forward to the IEEE-SA BOG for approval (see clause 5.1 of the *IEEE Standards Association Operations Manual*).

Modifications to these bylaws and the reasons therefor shall be mailed to all members of the IEEE-SA Standards Board at least 30 days before the IEEE-SA Standards Board meeting where the vote on these modifications shall be taken. Two-thirds of the voting Board members present at the meeting shall be required to approve any modifications.

These bylaws shall be reviewed by legal counsel.

### **8.1 Interpretations of the *IEEE-SA Standards Board Bylaws***

Requests for interpretations of this document shall be directed to the Secretary of the IEEE-SA Standards Board. The Secretary of the Board shall respond to the request within 30 days of receipt. Such response shall indicate a specified time limit when such an interpretation will be forthcoming. The time limit shall be no longer than is reasonable to allow consideration of and recommendations on the issue by, for example, the Procedures Committee of the IEEE-SA Standards Board. The interpretation shall be delivered by the Chair of the Procedures Committee after committee discussion provided that at least 75% of the committee agrees. The IEEE-SA Standards Board shall be notified of these results. If less than 75% of the committee agrees, or if any single committee member requests, the issue shall be deferred to the next regularly scheduled IEEE-SA Standards Board meeting for the full Board to decide.

## EXHIBIT 13

## Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC

(1 March 2007)

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## Part I – Common guidelines

### 1 Purpose

ITU, in its Telecommunication Standardization Sector (ITU-T) and its Radiocommunication Sector (ITU-R), ISO and IEC have had patent policies for many years, the purpose being to provide in simple words practical guidance to the participants in their Technical Bodies in case patent rights matters arise.

Considering that the technical experts are normally not familiar with the complex issue of patent law, the Common Patent Policy for ITU-T/ITU-R/ISO/IEC (hereafter referred to as the “Patent Policy”) was drafted in its operative part as a checklist, covering the three different cases which may arise if a Recommendation | Deliverable requires licences for Patents to be practiced or implemented, fully or partly.

The Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC (hereafter referred to as the “Guidelines”) are intended to clarify and facilitate implementation of the Patent Policy, a copy of which can be found in Annex 1 and also on the web site of each Organization.

The Patent Policy encourages the early disclosure and identification of Patents that may relate to Recommendations | Deliverables under development. In doing so, greater efficiency in standards development is possible and potential patent rights problems can be avoided.

The Organizations should not be involved in evaluating patent relevance or essentiality with regards to Recommendations | Deliverables, interfere with licensing negotiations, or engage in settling disputes on Patents; this should be left - as in the past - to the parties concerned.

Organization-specific provisions are contained in Part II of this document. However, it is understood that those Organization-specific provisions shall contradict neither the Patent Policy nor the Guidelines.

### 2 Explanation of terms

**Contribution:** Any document submitted for consideration by a Technical Body.

**Free of charge:** The words “free of charge” do not mean that the Patent Holder is waiving all of its rights with respect to the essential patent. Rather, “free of charge” refers to the issue of monetary compensation; *i.e.*, that the Patent Holder will not seek any monetary compensation as part of the licensing arrangement (whether such compensation is called a royalty, a one-time licensing fee, etc.). However, while the Patent Holder in this situation is committing to not charging any monetary amount, the Patent Holder is still entitled to require that the implementer of the above document sign a license agreement that contains other reasonable terms and conditions such as those relating to governing law, field of use, reciprocity, warranties, etc.

**Organizations:** ITU, ISO and IEC.

**Patents:** Patents refer to essential patents or similar rights, utility models and other statutory rights based on inventions, including any applications for any of the foregoing.

**Patent Holder:** Person or entity that owns, controls and/or has the ability to license Patents.

**Reciprocity:** As used herein, the word “reciprocity” means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same above document free of charge or under reasonable terms and conditions.

**Recommendations | Deliverables:** ITU-T and ITU-R Recommendations are referred to as “Recommendations”, ISO deliverables and IEC deliverables are referred to as “Deliverables”. The various types of Recommendation(s) | Deliverable(s) are referred to as “Document types” in the Patent Statement and Licensing Declaration Form (hereafter referred to as “Declaration Form”) attached as Annex 2.

**Technical Bodies:** Study Groups, any subordinate groups and other groups of ITU-T and ITU-R and technical committees, subcommittees and working groups in ISO and IEC.

### 3 Patent disclosure

As mandated by the Patent Policy in its paragraph 1, any party participating in the work of the Organizations should, from the outset, draw their attention to any known patent or to any known pending patent application, either their own or of other organizations.

In this context, the words “from the outset” imply that such information should be disclosed as early as possible during the development of the Recommendation | Deliverable. This might not be possible when the first draft text appears since at this time, the text might be still too vague or subject to subsequent major modifications. Moreover, that information should be provided in good faith and on a best effort basis, but there is no requirement for patent searches.

In addition to the above, any party not participating in Technical Bodies may draw the attention of the Organizations to any known Patent, either their own and/or of any third-party.

When disclosing their own Patents, Patent Holders have to use the Patent Statement and Licensing Declaration Form (referred to as the “Declaration Form”) as stated in Section 4 of these Guidelines.

Any communication drawing the attention to any third-party Patent should be addressed to the concerned Organization(s) in writing. The potential Patent Holder will then be requested by the relevant Organization(s) to submit a Declaration Form.

The Patent Policy and these Guidelines also apply to any Patent disclosed or drawn to the attention of the Organizations subsequent to the approval of a Recommendation | Deliverable.

Whether the identification of the Patent took place before or after the approval of the Recommendation | Deliverable, if the Patent Holder is unwilling to license under paragraph 2.1 or 2.2 of the Patent Policy, the Organizations will promptly advise the Technical Bodies responsible for the affected Recommendation | Deliverable so that appropriate action can be taken. Such action will include, but may not be limited to, a review of the Recommendation | Deliverable or its draft in order to remove the potential conflict or to further examine and clarify the technical considerations causing the conflict.



## **4 Patent Statement and Licensing Declaration Form**

### **4.1 The purpose of the Declaration Form**

To provide clear information in the Patent Information databases of each Organization, Patent Holders have to use the Declaration Form, which is available on the web site of each Organization (the Declaration Form is included in Annex 2 for information purposes). They must be sent to the Organizations for the attention, for ITU, of the Directors of the TSB or the BR or, for ISO/IEC, of the CEOs. The purpose of the Declaration Form is to ensure a standardized submission to the respective Organizations of the declarations being made by Patent Holders and, most importantly, to require in the case of ITU, and to strongly desire in the case of ISO and IEC, supporting information and an explanation if a Patent Holder declares his/her unwillingness to license under option 1 or 2 of the Declaration Form (i.e., declares option 3 of the Declaration Form).

The Declaration Form gives Patent Holders the means of making a licensing declaration relative to rights in Patents required for implementation of a specific Recommendation | Deliverable. Specifically, by submitting this Declaration Form the submitting party declares its willingness/unwillingness to license, according to the Patent Policy, Patents held by it and whose licence would be required to practice or implement part(s) or all of a specific Recommendation | Deliverable.

The statement contained in the Declaration Form remains in force as long as it has not been replaced, e.g., in case of obvious errors.

Multiple Declaration Forms are appropriate if the Patent Holder has identified several Patents and classifies them in different options of the Declaration Form and/or if the Patent Holder classifies different claims of a complex patent in different options of the Declaration Form.

### **4.2 Contact information**

In completing Declaration Forms, attention should be given to supplying contact information that will remain valid over time. Where possible, the "Name and Department" and e-mail address should be generic. Also it is preferable, where possible, that parties, particularly multinational organizations, indicate the same contact point on all Declaration Forms submitted.

With a view to maintaining up-to-date information in the Patent Information database of each Organization, it is requested that the Organizations be informed of any change or corrections to the Declaration Form submitted in the past, especially with regard to the contact person.

## **5 Conduct of meetings**

Early disclosure of Patents contributes to the efficiency of the process by which Recommendations | Deliverables are established. Therefore, each Technical Body, in the course of the development of a proposed Recommendation | Deliverable, will request the disclosure of any known Patents essential to the proposed Recommendation | Deliverable.

Chairmen of Technical Bodies will, if appropriate, ask, at an appropriate time in each meeting, whether anyone has knowledge of Patents, the use of which may be required to practice or implement the Recommendation | Deliverable being considered. The fact that the question was asked shall be recorded in the meeting report, along with any affirmative responses.

As long as the Organization concerned has received no indication of a Patent Holder selecting paragraph 2.3 of the Patent Policy, the Recommendation | Deliverable may be approved using the appropriate and respective rules of the Organization concerned. It is expected that discussions in Technical Bodies will include consideration of including patented material in a Recommendation | Deliverable, however the Technical Bodies may not take position regarding the essentiality, scope, validity or specific licensing terms of any claimed Patents.

## **6 Patent Information database**

In order to facilitate both the standards-making process and the application of Recommendations | Deliverables, each Organization makes available to the public a Patent Information database composed of information that was communicated to the Organizations by the means of Declaration Forms. The Patent Information database may contain information on specific Patents, or may contain no such information but rather a statement about compliance with the Patent Policy for a particular Recommendation | Deliverable.

The Patent Information databases are not certified to be either accurate or complete, but only reflect the information that has been communicated to the Organizations. As such, the Patent Information databases may be viewed as simply raising a flag to alert users that they may wish to contact the entities who have communicated Declaration Forms to the Organizations in order to determine if patent licenses must be obtained for use or implementation of a particular Recommendation | Deliverable.

## **Part II – Organization-specific provisions**

### **Specific provisions for ITU**

#### **ITU-1 General Patent Statement and Licensing Declaration Form**

Anyone may submit a General Patent Statement and Licensing Declaration Form which is available on the web sites of ITU-T and ITU-R (the form in Annex 3 is included for information purposes). The purpose of this form is to give Patent Holders the voluntary option of making a general licensing declaration relative to material protected by Patents contained in any of their Contributions. Specifically, by submitting its form, the submitting party declares its willingness to license all Patents owned by it in case part(s) or all of any proposals contained in its Contributions submitted to the Organization are included in Recommendation(s) and the included part(s) contain items that have been patented or for which patent applications have been filed and whose licence would be required to practice or implement Recommendation(s).

The General Patent Statement and Licensing Declaration Form is not a replacement for the “individual” (see clause 4 of Part I) Declaration Form, which is made per Recommendation, but is expected to improve responsiveness and early disclosure of the Patent Holder’s compliance with the Patent Policy.

The General Patent Statement and Licensing Declaration remains in force as long as it has not been replaced. It can be overruled by the “individual” (per Recommendation) Declaration Form from the same Patent Holder for any particular Recommendation (expectation is that this will rarely occur).

The ITU Patent Information database also contains a record of General Patent Statement and Licensing Declarations.

**ITU-2 Notification**

Text shall be added to the cover sheets of all new and revised ITU-T and ITU-R Recommendations, where appropriate, urging users to consult the ITU Patent Information database. The wording is:

“ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU [had/had not] received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the ITU Patent Information database.”

**Specific provisions for ISO and IEC****ISO/IEC-1 Consultations on draft Deliverables**

All drafts submitted for comment shall include on the cover page the following text:

“Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.”

**ISO/IEC-2 Notification**

A published document for which no patent rights are identified during the preparation thereof, shall contain the following notice in the foreword:

“Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO [and/or] IEC shall not be held responsible for identifying any or all such patent rights.”

A published document for which patent rights have been identified during the preparation thereof, shall include the following notice in the introduction:

“The International Organization for Standardization (ISO) [and/or] International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning (...subject matter...) given in (...subclause...).

ISO [and/or] IEC take[s] no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the ISO [and/or] IEC that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO [and/or] IEC. Information may be obtained from:

-7-

name of holder of patent right ...

address ...

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO [and/or] IEC shall not be held responsible for identifying any or all such patent rights.”

## ANNEX I

## COMMON PATENT POLICY FOR ITU-T/ITU-R/ISO/IEC

The following is a "code of practice" regarding patents covering, in varying degrees, the subject matters of ITU-T Recommendations, ITU-R Recommendations, ISO deliverables and IEC deliverables (for the purpose of this document, ITU-T and ITU-R Recommendations are referred to as "Recommendations", ISO deliverables and IEC deliverables are referred to as "Deliverables"). The rules of the "code of practice" are simple and straightforward. Recommendations | Deliverables are drawn up by technical and not patent experts; thus, they may not necessarily be very familiar with the complex international legal situation of intellectual property rights such as patents, etc.

Recommendations | Deliverables are non-binding; their objective is to ensure compatibility of technologies and systems on a worldwide basis. To meet this objective, which is in the common interests of all those participating, it must be ensured that Recommendations | Deliverables, their applications, use, etc. are accessible to everybody.

It follows, therefore, that a patent embodied fully or partly in a Recommendation | Deliverable must be accessible to everybody without undue constraints. To meet this requirement in general is the sole objective of the code of practice. The detailed arrangements arising from patents (licensing, royalties, etc.) are left to the parties concerned, as these arrangements might differ from case to case.

This code of practice may be summarized as follows:

1 The ITU Telecommunication Standardization Bureau (TSB), the ITU Radiocommunication Bureau (BR) and the offices of the CEOs of ISO and IEC are not in a position to give authoritative or comprehensive information about evidence, validity or scope of patents or similar rights, but it is desirable that the fullest available information should be disclosed. Therefore, any party participating in the work of ITU, ISO or IEC should, from the outset, draw the attention of the Director of ITU-TSB, the Director of ITU-BR, or the offices of the CEOs of ISO or IEC, respectively, to any known patent or to any known pending patent application, either their own or of other organizations, although ITU, ISO or IEC are unable to verify the validity of any such information.

2 If a Recommendation | Deliverable is developed and such information as referred to in paragraph 1 has been disclosed, three different situations may arise:

2.1 The patent holder is willing to negotiate licences free of charge with other parties on a non-discriminatory basis on reasonable terms and conditions. Such negotiations are left to the parties concerned and are performed outside ITU-T/ITU-R/ISO/IEC.

2.2 The patent holder is willing to negotiate licences with other parties on a non-discriminatory basis on reasonable terms and conditions. Such negotiations are left to the parties concerned and are performed outside ITU-T/ITU-R/ISO/IEC.

2.3 The patent holder is not willing to comply with the provisions of either paragraph 2.1 or paragraph 2.2; in such case, the Recommendation | Deliverable shall not include provisions depending on the patent.

3        Whatever case applies (2.1, 2.2 or 2.3), the patent holder has to provide a written statement to be filed at ITU-TSB, ITU-BR or the offices of the CEOs of ISO or IEC, respectively, using the appropriate "Patent Statement and Licensing Declaration" Form. This statement must not include additional provisions, conditions, or any other exclusion clauses in excess of what is provided for each case in the corresponding boxes of the form.

## ANNEX 2

PATENT STATEMENT AND LICENSING DECLARATION FORM FOR ITU-T/ITU-R  
RECOMMENDATION | ISO/IEC DELIVERABLE**Patent Statement and Licensing Declaration  
for ITU-T/ITU-R Recommendation | ISO/IEC Deliverable***This declaration does not represent an actual grant of a license*

Please return to the relevant organization(s) as instructed below per document type:

Director  
Telecommunication  
Standardization Bureau  
International Telecommunication  
Union  
Place des Nations  
CH-1211 Geneva 20,  
Switzerland  
Fax: +41 22 730 5853  
Email: [tsbdir@itu.int](mailto:tsbdir@itu.int)

Director  
Radiocommunication Bureau  
International Telecommunication  
Union  
Place des Nations  
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Name of authorized person

Title of authorized person

Signature

Place, Date

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FORM: 1 March 2007



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No.	Status [granted/ pending]	Country	Granted Patent Number or Application Number (if pending)	Title
1				
2				
3				

*NOTE: For option 3, the additional minimum information that shall also be provided is listed in the option 3 box above.*

ANNEX 3

GENERAL PATENT STATEMENT AND LICENSING DECLARATION FORM FOR ITU-T/ITU-R RECOMMENDATION



**General Patent Statement and Licensing Declaration**

**for ITU-T/ITU-R Recommendation**

*This declaration does not represent an actual grant of a license*

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**Patent Holder:**

Legal Name \_\_\_\_\_

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Negotiations are left to the parties concerned and are performed outside the ITU-T/ITU-R.

*Also mark here \_\_\_ if the Patent Holder's willingness to license is conditioned on reciprocity for the above ITU-T/ITU-R Recommendation.*

*Also mark here \_\_\_ if the Patent Holder reserves the right to license on reasonable terms and conditions (but not free of charge) to applicants who are only willing to license their patent claims, whose use would be required to implement the above ITU-T/ITU-R Recommendation, on reasonable terms and conditions (but not free of charge).*

☐

2. The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the relevant ITU-T/ITU-R Recommendation.

Negotiations are left to the parties concerned and are performed outside the ITU-T/ITU-R.

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**Reciprocity:** As used herein, the word "reciprocity" means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same ITU-T/ITU-R Recommendation free of charge or under reasonable terms and conditions.

**Signature:**

Patent Holder

Name of authorized person

Title of authorized person

Signature

Place, Date

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FORM: 1 March 2007

## EXHIBIT 14

# INTERNATIONAL JOURNAL OF IT STANDARDS AND STANDARDIZATION RESEARCH

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# Interpreting and Enforcing the Voluntary FRAND Commitment

*Roger G. Brooks, Cravath, Swaine & Moore, USA*

*Damien Geradin, Tilburg University, The Netherlands*

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## ABSTRACT

*Although often debated as though it were public law, a FRAND undertaking is a private contract between a patent-holder and an SSO. Applying ordinary principles of contract interpretation to the case of ETSI IPR policy reveals that “interpretations” of FRAND advocated by some authors—including cumulative royalty limits, royalties set by counting patents, or a prohibition on capture by the patent-holder of any gains created by standardization—cannot be correct (ETSI, n.d.). Rather, a FRAND obligation leaves wide latitude to private parties negotiating a license. However, this does not mean that a FRAND commitment has no substance to be enforced by courts. In this paper, the authors review how, consistent with both contract principles and established judicial method, courts can enforce a contractual obligation to offer licenses on FRAND terms, without becoming IPR price regulators. Similarly, ordinary principles of contract interpretation reveal that the “non-discriminatory” portion of FRAND cannot be interpreted to be coextensive with common “most favored nations” provisions, but instead contemplates substantial latitude for private parties to negotiate terms suited to their particular situations.*

*Keywords:* ETSI, FRAND, IPR, Licensing, RAND, SSO, Standards

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## INTRODUCTION

### A. Overview

Technical standards are far from a new phenomenon. Since the late eighteenth and early twentieth centuries, national and international bodies—in many cases purely private and voluntary bodies—have been promulgating standards in a wide array of commercially important technical fields. Over the years, thousands of such standards have been developed, approved, and used in industry. Until recently, all this was

very largely the domain of engineers; until the last decade, despite their commercial and international importance, technical standards attracted very little litigation or legal commentary.

But times have changed. Now, lawyers are studying intensively each stage of the standardization process: membership rules of standards-setting organizations (“SSOs”), policies concerning disclosure of potentially relevant patents, licensing of “essential” patents, and enforcement in the case of alleged violations of SSO policies—all are now transformed into legal topics.

In this new world of standards, one of the currently most contentious issues concerns the

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meaning of a commitment by the holder of patents “essential” to the practice of a standard to license such patents on “fair, reasonable, and nondiscriminatory” (FRAND) terms and conditions. The body of legal literature addressing this question is by now substantial, and growing. While not necessarily reaching similar conclusions, a number of authors have addressed this issue as a question of economic theory: what limitations (if any) on the freedom of the parties negotiating a licence to essential patents will best ensure efficient outcomes?

As a response to this question, authors have variously argued that, in order to satisfy a “fair and reasonable” commitment, a patent holder:

- Must charge no more than the incremental value of his invention over the next best technical alternative (Lemley & Shapiro, 2007; Dolmans, 2008; Temple Lang, 2007);
- Must not negotiate for a royalty-free cross-licence as part of the consideration for a license (Dolmans, 2008);
- Must set his royalty rate based on a mathematical proportion of all patents essential to the practice of a standard (Chappatte, 2009; Temple Lang, 2007);
- Must set his royalty rate in such a way as to prevent cumulative royalties on the standardised product from exceeding a low percentage of the total sale price of that product (Lemley & Shapiro, 2007);
- Must not raise requested royalty rates after the standard has been adopted, or after the relevant market has grown to maturity (Chappatte, 2009; Shapiro & Varian, 1999; Swanson & Baumol, 2005);
- Is not entitled to seek injunctive relief against a standard implementer should they fail to agree on licence terms (Farrell et al., 2007; Temple Lang, 2007).

The types of economic arguments relied on by these authors to justify these restrictive regimes may well be useful in debating public policy and the proper application of antitrust rules – although one of the present authors and others have elsewhere critiqued the merits

of many of these calls for what is essentially government intervention in the private licencing process.<sup>1</sup> But in this paper we step back to ask a different question: What do these arguments and proposed regimes have to do with the contract which is the source of the FRAND obligation?

This paper is divided in four sections. Section 1 reviews the basic fact that a FRAND commitment is the result of a voluntary contract between essential patent holders and a standards-setting organization, with the important corollary that the meaning of that commitment must be determined through the legal methods of contractual interpretation. Using a FRAND undertaking to ETSI as an example, it identifies the main categories of information potentially relevant to contract construction, including for instance the contract language itself, and the “negotiation history” of the ETSI IPR Policy (ETSI, n.d.). Section 2 shows that none of these categories of information support any of the restrictive limitations listed at the opening of this introduction. On the contrary, “fair and reasonable” are on their face flexible terms the specific content of which is substantially left to the negotiation between the parties. Our research also shows that all attempts made subsequent to the ETSI IPR Policy’s adoption to alter the balance of interests between essential patent holders and implementers by changing the meaning of FRAND have been rejected by the ETSI membership. Section 3 addresses issues regarding the judicial enforcement of a FRAND undertaking. First, we demonstrate that, when it is alleged that a patentee has failed to offer “fair and reasonable” terms, the role of a court is not to determine what “fair and reasonable” terms would be, but whether the terms offered, taking into account all of the specific circumstances between the parties and prevailing market conditions, fall outside the range of reasonableness contemplated by the FRAND commitment. Second, we conclude that a licensee should not be able to collaterally attack the enforceability of a licence based on a prior FRAND commitment. Third, we note that what is “fair and reasonable” after full adjudication of infringement and validity may be higher than what would

have been “fair and reasonable” in the context of pre-litigation negotiations. Section 4 offers a few observations as to the “intent of the parties” with respect to the “non-discriminatory” component of FRAND based on the deliberative record surrounding the adoption of the ETSI IPR policy, concluding that while the “ND” of FRAND does impose requirements that in some contexts will go beyond the requirements of national competition law, it cannot be read as requiring the equivalent of universal “most favored licensee” rights for all licensees.

## B. Methodology

We focus our analysis on the ETSI IPR policy for two reasons. First, the ETSI policy in particular is a subject of great economic importance and current controversy with the European Union. The WCDMA standard adopted by ETSI was, for instance, at the core of a couple of a competition law investigations initiated by the European Commission, which ended with no finding of infringement at the end of 2009.<sup>2</sup> (European Commission, 2009a, 2009b). Second, ETSI has maintained an unusually comprehensive and accessible archival history of its deliberations concerning IPR policy. ETSI was by no means the first SSO to request FRAND (or RAND) commitments from members, but it engaged in and has preserved records of meaningful discussion of its IPR policy at the time of its original adoption, and of proposed changes in subsequent years, leaving a valuable resource for those wishing to learn how industry participants actually understand FRAND – at least in the context of one major SSO.

For context and broader perspective, we have also looked to the IPR policy of the American National Standards Institute (ANSI, 1959), an organization founded in 1918 and a founding member of the International Standards Organization (ISO). ANSI is not itself an SSO, but rather is an organization that encourages standardization and accredits SSOs. ANSI has promulgated a patent policy since at least 1959, and requires as a condition of accreditation that an SSO comply with ANSI’s patent policy

(ANSI, 2010, Sections 3.0, 3.1, 3.3). More than 200 SSOs (responsible for more than 9000 standards) are now accredited by ANSI and thus operate under its patent policy (ANSI, n.d.). As will be seen, the ANSI IPR policy language is closely consistent with that of the ETSI policy. However, so far as we have been able to determine, ANSI has not maintained archives capturing the deliberations surrounding the original adoption of its RAND-based IPR policy.

## 1. THE CONTRACTUAL BASIS OF FRAND OBLIGATIONS

### A. FRAND as a Voluntary Contract.

The core right and definition of a patent is the power to exclude others from practicing the invention. Obviously, an agreement to licence on FRAND terms is a critical restriction of that right. What is equally obvious is that a FRAND obligation is *solely* the result of a *voluntary* contract entered into by the patent owner on an identifiable date (Miller, 2007; Lemley, 2002).<sup>3</sup> And it is voluntary in at least two ways. First, a patent-holder may decline membership in an SSO, and thus have no obligations under its rules.

Second, based on our non-exhaustive review, it appears that at least most major SSOs make a FRAND commitment voluntary even for members. That is, members are requested – not required – to commit to licence patents on FRAND terms, and may elect to do so, or not, on a patent-by-patent basis. While there are SSOs that require a blanket FRAND commitment as a condition of membership, such requirements have in some instances created “nonparticipation” problems, ETSI and ANSI are representative in their explicitly voluntary policies, under which an obligation to licence a patent on FRAND terms arises not by automatic operation of the entity’s policy, but (at the earliest) only if and when the patent owner agrees, in writing, to licence on FRAND terms.<sup>4</sup>

If a member patentee wishes to retain its right to exclude, and so declines to make



a FRAND commitment with respect to a particular patent, then the SSO generally will simply adopt a standard that does not use that patented technology,<sup>5</sup> leaving the SSO no worse off than if the excluded innovation had never been developed, and potentially advantaging consumers by setting up competition between standardised and proprietary solutions.

We note that the draft “Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements” (European Commission, 2010) (the “Horizontal Cooperation Guidelines”) recently issued by DG Comp would radically change this landscape, imposing a *de facto* requirement (on pain of competition law liability) that *all* SSOs require mandatory blanket FRAND commitments from members (SEC (10) 528/2 draft para. 282). With respect to SSO members, this policy would for the first time impose an *involuntary* termination of the basic patent “right to exclude”, with the only “voluntary” option left being the choice to abstain from participation in the SSO. As a by-product, the ability of an SSO member to elect to compete against a standard by means of a proprietary solution would be eliminated as a practical matter.

## B. Interpreting FRAND as a Contract.

If a FRAND undertaking is a contract, then there are legally proper methods for determining what that contract means, and they do not include lengthy flights of economic theory. On the contrary, both the Civil Law and Common Law traditions of contract interpretation and enforcement fundamentally look to discern and give effect to the *intent of the parties* (Corbin, 1952, p. 538).<sup>6</sup>

In that context, we note that the “parties” to a FRAND undertaking are the patent owner and the SSO, while the “parties” that developed and agreed upon the underlying IPR Policy were the diverse set of industry participants that make up the membership of the SSO – not academic economists or competition authorities. As a

result, there is no reason at all to suppose that the “founding fathers” of ETSI (for example) settled on IPR policies that are functionally interchangeable with EU competition law, as some authors more or less suggest (Dolmans, 2008) (“Article 82 obligations are substantially similar to the contractual obligations under FRAND commitments.”). Nor is there any reason to suppose that the agreement they reached did or was intended to implement idealized economic theory.

We propose, then, to take the FRAND obligation seriously as a contract. Using a FRAND undertaking to ETSI as an example, we will ask when the contract was formed, and what the parties actually agreed to.

Acknowledging the relevance of the “intent of the parties” to the meaning of a FRAND commitment raises the possibly troubling spectre that FRAND could mean different things in different SSOs. As a theoretical matter, this is true. As a practical matter, there are good reasons to believe that the memberships of major SSOs do *not* mean different things by “FRAND”. First, the major players in major SSOs are generally multi-national corporations that participate in multiple SSOs; one would expect their employees to carry a generally consistent expectation of what “FRAND” means from one context to the next. Second, as will be seen in our review below, individual SSOs have not infrequently explicitly referred to the IPR policies of longer-established SSOs as precedent to explain or justify their own IPR policies. And third, as an empirical matter to the limited extent commentary bearing on the intent of ANSI’s RAND licensing policy can be identified, it reveals no evidence of any significant divergence in intent with respect to FRAND commitments. Thus, while one must always bear in mind the possibility of divergent “intentions” among different SSOs, it is considerably more likely that the record provided by the well-documented history of the ETSI IPR policy is giving us a window into how active participants in standardised high-technology industries generally understand FRAND.

### C. Locating the Intent of the Parties

It is easy to refer to “the intent of the parties”, but in the case of a voluntary FRAND commitment, locating that intent is by no means a simple matter. A particular FRAND obligation comes into existence as the last step in a lengthy history. Taking ETSI as our working example, the relevant terms of the ETSI IPR Policy were fixed by vote of the ETSI membership in 1994. However, the adoption of the ETSI IPR Policy did not create any FRAND commitment; it merely set out the terms under which ETSI may (if it follows its rules) consider member-owned IPR for inclusion in standards. No contract is formed, no FRAND commitment is created, until a patent holder voluntarily submits a written agreement to licence identified patents (whether identified individually or categorically) on FRAND terms. Certainly it is this written agreement or “undertaking” that is the contract (in the words of ANSI, it is the written undertaking that “creates a commitment by the patent holder and third-party beneficiary rights in implementers of the standard” (ANSI, 2006), but since such undertakings commonly repeat or refer to the “fair, reasonable, and nondiscriminatory” terminology of the pre-existing IPR Policy, and are written against the background of that policy, such an undertaking cannot be construed as a free-standing document, but must be construed (as it was written) with reference to the IPR Policy.

In sum, we identify four main categories of information potentially relevant to contract construction: (i) the contract language itself; (ii) information as to the pre-existing “understanding of the industry” as to what a FRAND undertaking to an SSO meant, at the time the FRAND concept was incorporated into the SSO IPR Policy; (iii) information concerning the actual deliberation and debate by the ETSI members at the time the policy was adopted; and (iv) subsequent comment and action relating to the meaning of FRAND by the relevant SSO.

The specific language of a particular declaration made by a patent holder would of course

also be relevant. However, since this class of evidence of intent would by its nature pertain only to individual declarations, we will not give it any further consideration in this discussion of general principles.

It is indeed possible that economic theory might make additional contributions by enabling us to better *understand* the course of the contract negotiations, or the contemporaneous industry practices, but nothing in either the Civil Law or Common Law tradition could permit economic theory to *substitute* for or overrule evidence of the actual intent of the parties. Further, if one did wish to use economic theory to predict or better understand the IPR Policy compromises actually reached by the members of ETSI or any other SSO, one would need to look to game theory models that take into account the institutional interests and bargaining power of the member organizations, and we have not seen that complicated game attempted.

## 2. THE CONTRACTUAL MEANING OF “FAIR AND REASONABLE”

In this section, we look to the main categories of information potentially relevant to contract construction identified above to determine the meaning of “fair and reasonable” in connection with the ETSI IPR policy in particular. On occasion, we also cite to ANSI materials as well for broader industry context.

### A. The Plain Language

The starting point of any contract interpretation must be the language of the contract itself. The terms “fair and reasonable” are on their face terms implying wide latitude; they are permissive words to which there is even conceptually no one right answer.<sup>7</sup> For example, in connection with the sale of a relatively illiquid property such as a house or a tract of real estate, negotiations between the seller and one or more potential buyers could result in a considerable range of prices (perhaps differing depending on the urgencies of the parties), any one of which

the outside observer would have to concede to be at least “fair” or “reasonable”. The same is surely true of prices and terms for patent rights.

But we can say more. When a patent holder commits to licence on “fair, reasonable, and nondiscriminatory” terms in response to and pursuant to Section 6.1 of the ETSI IPR Policy, it is appropriate that, when considering the “plain meaning”, we look to what was before the declarant: the “plain meaning” of FRAND as it appears in context within the IPR Policy.

The ETSI IPR Policy states as its “Policy Objectives” the following:

*“3.1 It is ETSI’s objective to create STANDARDS and TECHNICAL SPECIFICATIONS that are based on solutions which best meet the technical objectives of the European telecommunications sector, as defined by the General Assembly. In order to further this objective the ETSI IPR POLICY seeks to reduce the risk to ETSI, MEMBERS, and others applying ETSI STANDARDS and TECHNICAL SPECIFICATIONS, that investment in the preparation, adoption and application of STANDARDS could be wasted as a result of an ESSENTIAL IPR for a STANDARD or TECHNICAL SPECIFICATION being unavailable. In achieving this objective, the ETSI IPR POLICY seeks a balance between the needs of standardization for public use in the field of telecommunications and the rights of the owners of IPRs.*

*3.2 IPR holders whether members of ETSI and their AFFILIATES or third parties, should be adequately and fairly rewarded for the use of their IPRs in the implementation of STANDARDS and TECHNICAL SPECIFICATIONS.*

*3.3 ETSI shall take reasonable measures to ensure, as far as possible, that its activities which relate to the preparation, adoption and application of STANDARDS and TECHNICAL SPECIFICATIONS, enable STANDARDS and TECHNICAL SPECIFICATIONS to be available to potential users in accordance with*

*the general principles of standardization.” (emphasis added)*

The above language makes clear that the rationale behind the FRAND commitment—and the “fair and reasonable” terms that are part of it—is twofold: (i) to ensure dissemination of the essential IPR contained in a standard, thereby allowing it to remain *available* for adoption by members of the industry, whilst at the same time (ii) making certain that holders of those IPR are able to reap *adequate and fair rewards* from their innovations.

The fact that IPR holders should be “adequately” rewarded is listed as the first criterion, and is by no means a synonym of “fair”. One may ask, “adequate for what purpose?” In the context of the wireless industry in which continual innovation is the lifeblood of the entire industry, the answer is utilitarian and reasonably clear: “adequate to motivate the investment and risk necessary to create the next generation of innovation”.

This is as one would expect: the goal to motivate future investment lies at the heart of the patent system, and is essential to the success of the standards enterprise. A Communication of the European Commission issued in 1992 (European Commission, 1992)—just at the time ETSI began developing its IPR policy—emphasized the prospective, motivational imperative specifically in the standards context:

*“[T]he incentive to develop new products and processes on which to base future standardization will be lost if the standard-making process is carried out without due regard for intellectual property rights” (European Commission, 1992)*

Recent (2006) commentary from ANSI highlights the same policy goal of motivating new R&D investment:

*“In return for “sharing” its patented technology (including making it available to competitors), the patent holder may receive reasonable com-*

*pensation from implementers of the standard in a non-discriminatory manner. The patent laws were designed in part to stimulate innovation and investment in the development of new technologies, which can be shared at reasonable rates with all those wishing to implement a standardized solution to an interoperability or functionality challenge” (ANSI, 2006) (emphasis added).*

Given a goal of compensation that will “adequately” motivate next-generation innovation, the ETSI IPR Policy’s reliance on the undeniably loose terms “fair and reasonable” will be seen as inevitable rather than a “defect”. The reason is that the circumstances surrounding the negotiation of particular licencing agreements differ widely;<sup>8</sup> the scale of R&D investment which must be induced in order to bring in the next generation of innovation in a timely fashion may escalate from one generation to the next; the investment-discouraging risk that R&D investment will result in failure may vary from one setting to the next. Given this radical and irreducible variability in the real world, only flexible terms such as “fair and reasonable” – the precise content of which is left to negotiation between the parties on a case-by-case basis – can ensure the widest availability of the technology embodied in the standard in the widest possible variety of circumstances, without unduly diminishing the innovation incentives that patent law was designed to create.<sup>9</sup> Thus, as pointed out by the European Commission in its Communication on “Intellectual property rights and standardization” that was issued while the ETSI IPR Policy was being negotiated, beyond the broad goal that essential technology be *available*, “it is not feasible or appropriate to be more specific as to what constitutes “fairness” or “reasonableness” since these are subjective factors determined by the circumstances surrounding the negotiation” Communication of the Commission “Intellectual Property Rights and Standardization” (European Commission, 1992).

By contrast, the above extracts of the ETSI IPR Policy do not contain any language hint-

ing at *any* of the very specific and restrictive limitations listed at the opening of this paper, which other authors attempt to read into “fair and reasonable”.<sup>10</sup>

Also in at least potential contrast to the pragmatic and prospective policy purposes embodied in the goal of “adequate” compensation to IPR owners found in Section 6.1 of the ETSI IPR Policy is the Horizontal Cooperation Guidelines proposal to measure what is “fair and reasonable” by reference to “the economic value of the patents” (Horizontal Cooperation Guidelines para 284). While “economic value” could be defined so many ways that it may in practice be as open as “fair and reasonable”, on its face it introduces terminology foreign to the IPR policy of ETSI (and that of ANSI), and suggests a retrospective focus (on the “value” of past innovation) rather than the prospective and motivational focus that is native to the theory of patents. Certainly the “plain language” of the ETSI IPR Policy does not point in that new direction.

## **B. “Fair and Reasonable” in the Standards Context Prior to the ETSI IPR Policy**

While focusing on the ETSI IPR Policy in our discussion above, we have also cited to ANSI-related sources where available as providing a separate “datapoint”. However, the IPR policies of major SSOs are in truth not “independent”. No SSO IPR policy adopted in recent decades has arisen *ex nihilo*; quite the contrary, they are adopted by sophisticated industry participants against a global background of decades of successful precedent. In the case of ETSI, the framers of its IPR policy very explicitly picked up the “FRAND” concept from the pre-existent “RAND” policy of the International Standards Organisation (ISO). For example, a document submitted by the ETSI Technical Assembly Chairman in 1991 proposed that “The licens[or] is required to grant licences on fair and reasonable non discriminatory terms as for the ISO policy” (12 TA TD 7 4 (attached to ETSI/GA11(91) TD 20)).<sup>11</sup> Similarly, the ETSI Director



submitted the ETSI Annual Report to the 12th ETSI General Assembly in 1992, which stated that ETSI was “developing a policy, based on that of the International Standards Organisation (ISO) and the International Electrotechnical Commission (IEC)” (ETSI/GA12(92)TD 15 6). IPR policies very similarly worded to that of the ISO were at that time already in place at other internationally important SSOs as well. It is reasonable, then, to suppose that the understanding of technology industry companies as to what “fair and reasonable” meant in this context was informed by the usage in those other SSOs.

One could review that context at length, but we will limit ourselves here to only a few illustrations. For instance, an ISO document circulated by the ISO/IEC Secretariat in 1999 stated that, even by that date, “ISO has no guidelines as to what constitutes ‘reasonable’ since each patent holder sets its own fee which is based upon commercial considerations at the time” (“Issues Relating to Patents – SC17’s Patent Policy” (Sept. 21, 1999) ISO/IEC JTC1/SC17 N 1585). Similarly, the patent policy of the International Telegraph and Telephone Consultative Committee (CCITT) (now known as ITU-T) in place in 1994 aimed to ensure that patentees “would be willing to negotiate licences with other parties on a non-discriminatory basis on reasonable terms and conditions”, but emphasized that the “detailed arrangements arising from patents (licencing, royalties, etc.) are being left to the parties concerned, as these arrangements might differ from case to case” (ETSI/GA15(93)18).<sup>12</sup> Finally, in a 1992 letter to ETSI, ANSI noted that “under the ISO/IEC and ANSI policies licensors remain free to negotiate such license terms as they may deem appropriate so long as such licenses are fair and non-discriminatory” (ETSI/GA12(92)TD3 4). Obviously, by the time ETSI set out to adopt its own IPR policy, the ISO, ITU, and ANSI between them had (or their members had), promulgated numerous economically important standards which had been widely and successfully implemented, within the framework of this generally consistent and unrestrictive conception of “F/RAND”.

Here again, what our research has *not* found is any indication, by the time ETSI adopted its current FRAND policy in 1994, that “fair and reasonable” in the context of the ISO – or other SSOs – had ever been held by the ISO or by any court to imply *any* of the detailed restrictions recently hypothesized by various authors.

### C. “Negotiation History” of the ETSI IPR Policy

As we have noted, the relatively recent history of the adoption of ETSI’s IPR policy is well documented, and key points in the negotiation and adoption of that policy may also shed light on what ETSI members (including major multinational technology companies<sup>13</sup>) understand that they are agreeing to when they make a FRAND undertaking.

ETSI as an organization was established in 1988, by the European Conference of Postal and Telecommunications Administrations (“CEPT”). As discussed in the previous section, when it set out to adopt an IPR policy in the early 1990s, ETSI looked to the ISO IPR policy in general, and in particular with respect to FRAND licensing. However, in other respects ETSI’s draft policy initially aimed at what the ETSI Technical Assembly Chairman believed would be an “advance” over the ISO IPR policy (12 TA TD 7 3). This proposed package of heightened restrictions on IPR owners included what became referred to as an “automatic licencing” or “licencing by default” provision, a requirement of advance declaration of maximum royalty rates, a rule precluding required cross-licences, and a mandatory arbitration requirement (ETSI/GA12(92)3).

Commencing at the 12th ETSI General Assembly meeting in April 1992, fierce controversy broke out over these proposed heightened restrictions. We find in this debate an interesting intersection of ETSI and ANSI, as ANSI submitted to ETSI a letter containing strong warnings about the impact of the proposed restrictions on licensing freedom on incentives for innovation:

*“If holders of IPRs are deprived of the ability freely to determine the terms and conditions upon which they will (or will not) make their IPRs available to others, the incentive for investing in innovative research and development will be significantly compromised. Furthermore, the incentive for leaders in the development of technological advancements to participate in the ETSI standardization process will be dramatically undermined” (ETSI/GA12(92) TD3 4).*

Nevertheless, at the March 1993 15th ETSI General Assembly, an IPR Policy and Undertaking including some of the novel provisions noted above was approved over heated opposition including threats by some participants to withdraw from ETSI.<sup>14</sup>

However, following the approval, even louder opposition broke out. Several important IPR owners objected strongly to the “automatic licencing” provision, and the Computer and Business Equipment Manufacturers’ Association (“CBEMA”) filed a complaint with the European Commission asserting that novel aspects of the policy (including the requirement of advance disclosure of royalty rates) were anticompetitive. Important participants threatened to withdraw from ETSI if the policy was implemented (Iversen, 1999),<sup>15</sup> so serious was the dissension among the membership that the ETSI Technical Assembly Chairman warned that “other entities with simpler rules may have ambitions to take over ETSI work and ETSI could be out of business in five or ten years” (ETSI/GA20(94)22 Rev.1 4).<sup>16</sup> On 22 July 1994, the ETSI General Assembly voted to “abandon the IPR Undertaking as adopted by the General Assembly meeting during its meeting on 18 March 1993” (ETSI/GA20(94)20; ETSI/GA20(94)22 Rev. 1). The 1993 draft IPR Policy and Undertaking was never actually implemented by ETSI, and following the July 1994 vote ETSI was again without an IPR policy.

Finally, at the 21st ETSI General Assembly in November 1994, the ETSI membership approved an IPR policy from which the heightened restrictions described above had been

removed, placing ETSI’s IPR policy squarely in the main stream of the policies of other major international SSOs (ETSI/GA21(94)3; ETSI/GA21(94)39 Rev.2 17-18). The 1994 policy remains in effect today, with minor changes.

What this history documents is that not merely was FRAND a concept borrowed in its inception from prior use by the ISO, but that the ETSI membership did not pour *new* meaning into FRAND, as all attempts to do so were rejected. Thus, any one who wishes to argue some restrictive or idiosyncratic meaning for an *ETSI* FRAND undertaking, whether based on economic argument or idiosyncrasies of EU or French law, should face a substantial burden of proof as a matter of contract interpretation.

#### **D. Post-1994 ETSI Comment on the FRAND Undertaking**

Post-adoption ETSI commentary and actions establish that the ETSI membership has consistently rejected subsequent efforts to alter the balance of interests between IPR owners and licensees by changing the meaning of FRAND.

In 2003, a number of ETSI members promoted an effort to make FRAND less flexible and discretionary by defining or giving examples of practices that would violate FRAND. The ETSI General Assembly authorized the creation of an Ad Hoc Group (AHG) to consider and report on such proposals (ETSI/GA42(03)20). During this process, multiple participants in the ETSI AHG noted their understanding that the meaning of FRAND was a matter of global consensus, not an ETSI question. A representative of Microsoft observed that “FRAND is a standard principle throughout all SDOs”, while a representative of Motorola asserted that the “FRAND term is identical in ITU policy, Japan SDO, US SDO . . . and this [‘FRAND’] is the standard way to express it” (ETSI/GA/IPR02(03)05 3).

But even if FRAND had historically been a global concept, other AHG participants argued that ETSI should nevertheless endorse new specific restrictions under the FRAND umbrella for its own purposes. Proposals included prohibitions on licences that require a royalty-free cross

licence, prohibitions on requiring “grantbacks” of rights to improvements, and prohibitions on licencing for certain regions of the globe at rates different from those charged for other regions. But none of these restrictions ever were agreed to, whether by the AHG or by the ETSI General Assembly. Instead, the AHG reported to the ETSI General Assembly that “The ETSI IPR Policy does not define FRAND”, and that “The ad hoc group was unable to define FRAND conditions” (ETSI/GA42(03)20 8). Further, it reported that “holders of big IPR portfolios” “saw no sense in . . . attempts” “to indirectly define FRAND conditions by giving several examples of bad practices” (Ibid at p.9). The AHG provided with its report an “Annex A” that contained a list of supposed “bad practices” that had been proposed by those members who advocated additional restrictions, while noting that these had *not* been agreed to by the AHG. The ETSI GA, while accepting the report itself, went farther and deleted this Annex A entirely (ETSI/GA42(03)20 Rev.1; ETSI/GA42(03)34 4-5).

In 2006 another effort to tighten the permissive nature of “fair and reasonable” was made within ETSI, with Nokia and two other manufacturers advocating that ETSI should “make changes to the [ETSI] IPR regime and practices” by “introduc[ing] the principles of AGGREGATED REASONABLE TERMS and PROPORTIONALITY into the FRAND definition” (ETSI/GA/IPRR01(06)08 2-3).<sup>17</sup> The proposal was once again intensely controversial within ETSI, and was not adopted by the General Assembly (ETSI/GA/IPRR06(06)24 Rev.1 14).

Thus, any party contemplating making a FRAND commitment that looks to the ETSI record to understand what such a commitment would mean will find the ETSI membership *declining* to approve restrictions or interpretations identical or analogous to many of those advocated today by the proponents of the restrictive FRAND regimes.

Most recently, ETSI’s “Guide on IPRs”, published in 2007, once again specifically disclaims any notion that ETSI does or intends to impose any more specific (and therefore more

restrictive) definition of FRAND terms and conditions, stating instead that “such commercial terms are a matter for discussion between the IPR holder and the potential licensee, outside of ETSI” (§ 2.2), and “Specific licensing terms and negotiations are commercial issues between the companies and shall not be addressed within ETSI” (§ 4.1).

### 3. ENFORCING FRAND CONTRACTUAL COMMITMENTS

#### A. Who Decides, and How? The Role of Courts

Business people—those who actually develop and use standards—inhabit a world ruled not by theoretic constructs, but by interests, negotiation, and endless and thoroughly pragmatic compromise. But lawyers, academics, and regulators breathe different air, and have a strong desire for certainty and consistency: What exactly constitute FRAND license terms? What formula or rule may we use to determine whether offered terms are or are not FRAND? Are particular terms for a particular portfolio FRAND, or are they not?

This desire for clear rules is understandable, but it cannot be reconciled with the concept of FRAND as adopted and understood by the industry participants who use it. The terms “fair and reasonable” are on their face terms of wide latitude and discretion, and as we have seen, that latitude has been emphasized rather than restricted by commentary from multiple SSOs, and the membership of ETSI has more than once rejected efforts to add more specific and therefore more constricting limitations into the meaning of FRAND.

Given the endless and wide variety of market and technological circumstances in which FRAND commitments are made, it may well be that any less flexible obligation would prove a procrustean bed, potentially discouraging SSO participation, or damaging incentives for beneficial R&D investment. But whether or not this is true as a policy matter, the fact remains

that the meaning of FRAND (if construed as a voluntary contract) is such that there *can be* no mathematical rules for determining what is or is not FRAND, because there is not and was not intended to be a precise answer to that question.

If FRAND is intended to provide wide latitude to be resolved by individual parties in individual negotiations (as SSOs have repeatedly stated), two questions naturally arise: (1) Does a FRAND commitment really mean anything at all? and, (2) Who decides what it means? The answer to the first question is “yes”, and the two questions are importantly related. It is only by careful attention to the question of process, the question of “who decides, and how?”, that one can preserve both the intended reality and the intended flexibility of a FRAND commitment.

A legal dispute concerning compliance with a FRAND commitment is most likely to arise on one of two ways. If an essential patent holder and a standard implementer<sup>18</sup> are unable to agree on licencing terms, the standard implementer, once accused of infringement, may simply wait and assert defensively that the IP owner has failed to satisfy its obligation to offer fair and reasonable terms, or possibly (depending on the procedures available in a given jurisdiction) could seek a determination through a breach of contract action that FRAND terms have not been offered, and an order requiring compliance with that obligation (Geradin & Rato, 2007, p. 119).

As we have seen, however, a court confronting such a claim radically misunderstands the FRAND commitment that the IP owner has made, and misunderstands the court’s own role, if it seeks to answer the question “What is the reasonable royalty for this IPR?” In agreeing to licence on FRAND terms, the IP owner has not agreed to constrain its licencing terms more tightly than the “range of reasonableness”. Thus, if an offer has been made and refused, then the only contractual question to be adjudicated is whether the terms offered, taking into account all of the specific circumstances between the parties and prevailing market conditions, fall outside the *range* of reasonableness contemplated by the FRAND commitment.

This type of analysis is not foreign to courts. Under US patent law, for example, after a jury has awarded “reasonable royalty” damages, the appeals court does *not* seek to second guess that decision and substitute its own view of what is “most reasonable”. Rather, the appeals court engages in a deferential review, asking only whether the jury’s award falls outside the range of what could be considered reasonable (*Micro Chem., Inc. v Lextron, Inc.*; *Rite-Hite Corp v Kelley Co., Inc.*; *Monsanto Co. v Ralph*)<sup>19</sup> Similarly, European courts<sup>20</sup> use a “going rate” or benchmarking method to identify a range of reasonable royalty rates that can serve as the basis for the calculation of damages after a finding of patent infringement, and the trial court enjoys significant judicial discretion in its appraisal. Where a decision awarding damages is appealed, the task of the appeals court is not to determine *ex novo* what the “reasonable rate” and resulting damage award is, but only to examine whether the lower court exceeded its considerable discretion in awarding reasonable damages (Cour de Cassation (Ch. Comm.) (France), *Sté Ets Delaplace et Sté Sicma c. Sté Van Der Lely*; Sampson, 2007).<sup>21</sup>

In the case of FRAND licencing, the initial discretion as to what is “reasonable” is entrusted to the negotiating parties or, in the absence of agreement, to the IP owner. If the would-be licensee “appeals” to a court, that court’s task is comparable to that of the appeals court in the US and European patent systems. And, as the party advancing the proposition that specific offered terms fall outside the range of reasonableness and thus do not satisfy the FRAND commitment, one would expect that the burden of proof would rest with the potential implementer. This allocation of burden is perhaps all the more reasonable given that, even with this “procedural safeguard” against aggressive manufacturers, the FRAND commitment represents a very significant concession by the IPR owner as compared to the pre-existing statutory right to exclude inherent in its patent.

In order to determine whether offered terms and conditions pass this “range of reasonableness test”, while there can be no mathematical



rules, there is no reason that courts should not make use of analytical tools already existing in the law. For instance, while the question of what is “reasonable” continues to be a flexible inquiry, the much-cited *Georgia-Pacific* case identifies a (non-exhaustive) list of 15 specific factors that US courts routinely consider,<sup>22</sup> and the factors from the *Georgia-Pacific* list have been invoked as useful in other jurisdictions. Interestingly, in one discussion paper created by the ETSI General Assembly Ad Hoc Group in 1993, the reporters (themselves representatives of RIM, not a US corporation) wrote that “If one were to read the important “*Georgia-Pacific*” case cited in United States law as a method to determine a “reasonable royalty”, it can readily be seen to be a test that closely parallels the concept of “fair, reasonable, and non-discriminatory” license obligations” (ETSI GA/IPR02(03)05 1).

Of course other important jurisdictions use different language, but we believe that they fundamentally agree that, when a court must determine a royalty rate, it may and should consider the wide range of information that would be relevant to a business decision-maker confronting the same question (*General Tire & Rubber Co. v Firestone Tyre & Rubber Co.*; *Cofrinex v Helary*; German Patent Act, Sec. 139 Para. 2).<sup>23</sup> Similarly, we believe that non-US jurisdictions can also find within their own structures examples of the type of deferential review that is appropriate where a court is tasked not to decide what the “right” answer is, but to decide whether terms offered fall entirely outside the *range* of possibility contemplated by the word “reasonable” (*Flint v Lovell*).<sup>24</sup>

Not all of the *Georgia-Pacific* factors will necessarily be relevant to the question of whether proffered licence terms are within the range of reasonableness, and peculiarities of a particular industry or standardised industries in general may properly enter into the equation. Nevertheless, a court may well find that the *Georgia-Pacific* list provides a useful framework or starting point for the inquiry.<sup>25</sup> Notably, royalties received under prior and existing licences for the very patents being

litigated often represent the most influential factor in determining “reasonableness” under the *Georgia-Pacific* framework, and should arguably have the same role in the context of FRAND litigation.

## B. FRAND Commitments and Challenges to Executed Licenses

If a would-be licensee refuses offered terms and objects that those terms do not satisfy the patent owner’s agreement to offer FRAND terms and conditions, then the court must undertake the analysis discussed above. However, *after* the parties have negotiated and executed a licence agreement, a complaint by the licensee that the terms of that licence are not FRAND presents very different issues.

While the doctrinal description will differ in different jurisdictions, the point is not complicated: It cannot be proper for a party, aware of rights it is entitled to claim under an existing contract (here, the FRAND commitment), to negotiate and sign a licence, enjoy the benefit of that licence for as long as it pleases, and then collaterally attack the licence as unenforceable (and perhaps claim past damages) on the theory that the licence terms violated the preceding contractual commitment. Within the Common Law tradition, this is a result of the doctrine of integration (*Restatement (Second) of Contracts* (1981) § 213),<sup>26</sup> or alternatively of the rule that, even in the absence of complete integration, a collateral contract may not be used to contradict the terms of a subsequent agreement (Lord, 2009, § 33:26).<sup>27</sup>

An extremely important economic truth underlies this principle. It is widely understood that uncertainty itself imposes an economic cost; accordingly, businesses often use the “stabilizing force of contracts” to reduce or eliminate unpredictability (*NRG Power Marketing v Main Public Utilities*). For this reason, companies commonly negotiate long-term licence agreements at fixed royalty rates, giving the two parties predictability as to revenues and costs, respectively. As the US Supreme Court has explained, “Markets are not perfect, and

one of the reasons that parties enter into . . . contracts is precisely to hedge against the volatility that market imperfections produce” (*Morgan Stanley Capital Group, Inc. v Public Utility District 1 of Snohomush County*, p. 2746). Private parties are of course free to negotiate short-term licence agreements, or agreements under which the royalty rate is subject to frequent re-negotiation, or periodic modification based on some external criteria. But they don’t do this, precisely because predictability is extremely important to many aspects of the conduct of a business, including, e.g., decisions about investments in research and development. As a result, uncertainty relating to “contract sanctity can have a chilling effect on investments and a seller’s willingness to enter into long-term contracts and this, in turn, can harm customers in the long run” (*Morgan Stanley Capital Group, Inc. v Public Utility District 1 of Snohomush County*, p. 2749 (quoting *Market Based Rates*, para. 6, 72 Fed. Reg. 33906-33907). Yet, a rule that would permit a licensee to collaterally attack a licence agreement—potentially years after the fact—on the theory that its terms violate a prior FRAND commitment, would make it *impossible* for licencing parties to negotiate for long-term predictability.

### C. What Is “Fair and Reasonable” Will Be Higher After Adjudication of Infringement and Validity

US courts and commentators routinely recognize that a “reasonable royalty” will be higher after a patent has been held valid and infringed in court than it was before that adjudication.<sup>28</sup> Providing empirical and theoretical support for this judicial view, Lemley and Shapiro have demonstrated that nearly half of patents litigated to a final determination in the US are held invalid, while a significant number of those held valid are held to be not infringed (Lemley & Shapiro, 2005, 2007). They report in a later paper that average “reasonable royalty” damage awards set rates more than *double* estimated average negotiated patent royalties, and conclude that this difference is at least in part

attributable to the uncertainty surrounding the strength and value of untested patents (Lemley & Shapiro, 2007).

Shapiro points out that, in light of these facts, what is “fair and reasonable” in the context of an offer to licence patents that have not been tested in litigation should be something lower than would be awarded after adjudication of infringement and validity, because of the uncertain strength of the patents (Farrell, 2007). But the reverse is equally true: After a patent has been tested and the uncertainty eliminated, then what is “fair and reasonable” no longer needs to include any “uncertainty discount”, and should be substantially *higher* than would have been the case pre-litigation.

This “that was then, this is now” aspect of FRAND is not only theoretically correct, it stands as a critically important deterrent to excessive litigation. Lemley and Shapiro have also noted that, in the ordinary licencing context, the risk of injunction and complete exclusion from the market motivates prospective infringers to obtain a licence instead of litigating (Lemley & Shapiro, 2005). However, if an infringer of essential patents is entitled to the *same* terms after unsuccessful litigation as he was entitled to before, then this incentive disappears; the infringer will have strong incentives to litigate even a weak case in the hopes of “getting lucky” with an invalidity or non-infringement ruling, and will face no downside risk beyond attorneys’ fees. The former Chief Judge of the Federal Circuit has noted exactly this incentive problem in the context of *Georgia-Pacific* royalty determinations, explaining that an infringer who, after unsuccessful litigation, “could count on paying only the normal, routine royalty non-infringers might have paid . . . would be in a “heads-I-win, tails-you-lose” position” (*Panduit Corp v Stahl Bros. Fibre Works*, 1978, p. 1158). Thus, a static definition of “fair and reasonable” unaffected by litigation would expose FRAND declarants to a much greater risk of non-meritorious litigation than faces parties unconstrained by FRAND. It is unlikely that any standards-setting organization intended, by requiring FRAND declarations, to create

this perverse incentive to attack rather than to pay for the intellectual property of its members.

#### **D. “Durable FRAND”: Can FRAND Commitments Survive the Sale of Patents?**

Some commentators have raised the spectre that to acknowledge the contractual nature of a FRAND commitment could enable such a commitment once made to be evaded by selling the patent to a third party. However, despite decades of SSO operation in reliance on contractual FRAND commitments, the only three instances we are aware of in which a purchaser of patents has claimed not to be bound by a prior FRAND (or similar) commitment are (a) the position taken but more recently abandoned by IPRCom in connection with patents purchased from Bosch,<sup>29</sup> (b) N-Data’s attempt to ignore a prior owner’s agreement to license certain essential patents for \$1000 (*N-Data* Complaint, 2008, para 28),<sup>30</sup> and (c) an effort by Funai Electronic Co. to charge “non-FRAND” royalties for patents purchased from Thomson Licensing (*Vizio Inc. v Funai Elec.*, 2010).

None of these efforts appear to have succeeded, and more than one theory provides protection against “FRAND evasion” while respecting the contractual nature of a FRAND commitment. First, an argument can be made that, given the on-line publication of FRAND declarations by major SSOs and the sophistication of participants in such industries, a purchaser of a patent which has been made subject to a FRAND declaration takes with either actual or constructive notice of that declaration and can be presumed to have negotiated a price taking that “encumbrance” into account, and should therefore be equitably estopped from asserting the patent in a manner inconsistent with that undertaking. This was essentially the result reached by the FTC in the *N-Data* case (Federal Trade Commission, 2008). Second, the court in *Vizio v. Funai* held that an allegation that Thomson sold patents to Funai as part of an *intentional* “scheme to circumvent Thomson’s FRAND commitment” stated a

claim for unlawful conspiracy under Section 1 of the Sherman Act (*Vizio Inc. v Funai Elec.*, 2010). Of course, the details of such approaches must be worked out within the legal doctrines of particular jurisdictions.

The draft Horizontal Cooperation Guidelines provide that, in order to fall outside the scope of the prohibition contained in Article 101(1) of the Treaty on the Functioning of the European Union (which prohibits anti-competitive agreements), all SSOs should require that members (who under the Guidelines proposed structure would be subject to mandatory FRAND obligations) “take all necessary measures to ensure that any [entity] to which the IPR owner transfers its IPR . . . is bound by that commitment” (Horizontal Guidelines, para. 286). Given the experience and theory reviewed above, this requirement would possibly be harmless, but certainly addresses a “problem” which thus far has been solvable with existing legal tools.

#### **4. NON-DISCRIMINATION: THE OTHER HALF OF FRAND**

We have focused in this paper on the “fair and reasonable” component of FRAND, because the meaning of “fair and reasonable” has attracted far more controversy than the meaning of “non-discriminatory”. But important questions remain in this area as well. Most significantly, one may ask whether the “ND” in FRAND really adds any obligation as a practical matter, or whether it is instead a platitude that imposes no obligations over and above what the competition law of most jurisdictions – such as the Robinson Patman Act in the United States or Article 102(c) of the Treaty on the Functioning of the European Union – would require in any case. Or, conversely, one may ask whether the “ND” imposes the same sort of obligations that are created by the type of “Most Favoured Licensee” (MFL) clause that parties commonly include in licenses by agreement.

Perhaps because it has not been at the centre of much controversy, we have found far

less documentary history in the ETSI archives relating to the meaning “non-discriminatory” than exists with regard to the meaning of “fair and reasonable”, but there is enough to offer a few observations about the “intent of the parties” with respect to “non-discriminatory” in the ETSI context.

### **A. The ETSI IPR Policy Was In Significant Part Designed to be “Non-Discriminatory” as to Nationality and Membership-Based Discrimination**

It is clear that from the start, one class of “discrimination” about which ETSI and stakeholders were concerned was classic protectionist discrimination, which might erect “barriers to trade” (ETSI/GA11(91)8),<sup>31</sup> and even violate the then called “GATT obligations” of the European Community member states (ETSI/GA12(92)TD 16 3; ETSI/GA12(92)TD 3 2; ETSI/IPR/GA(92)TD 5 3).<sup>32</sup> Emphasis was also put on the need to ensure that license terms did not discriminate in favour of ETSI members and against non-members (ETSI/GA12(92)TD 19 5; ETSI/IPR/GA(92)TD 5 3; ETSI/GA14(92)TD 20 3).<sup>33</sup> These goals were stated repeatedly during the development of the initial ETSI IPR policy, and attracted no significant disagreement then or in later disputes about IPR policy within ETSI, so far as we find in the records. It is also the case that we do not find any sign in these records – nor are we aware from any other source – of any later incident in which an ETSI member was alleged to have discriminated in its licensing terms based on the nationality of the licensee, or based on its status as a non-member of ETSI. Whether credit belongs to the “non-discriminatory” clause of the FRAND commitment or to market forces is an open question—although one suspects the latter, since where rules and market forces are at odds, one would expect to find telltale signs of ongoing controversy and “cheating”. Be that as it may, in the case of ETSI standards, these leading goals of the “non-discrimination” requirement appear to have been achieved.

### **B. “Non-Discriminatory” Is Not the Equivalent of a “Most Favoured Licensee” Guarantee**

Interestingly, the first IPR Policy adopted by ETSI – the 1993 policy adopted but then withdrawn amidst controversy, as reviewed previously (in section II(C), above) – went beyond the “non-discriminatory” requirement inherited from the ISO precedent by including, as part of an “Undertaking” that each member was to sign, what was in essence a rather straight-forward “MFL” requirement, requiring that licenses (at least licenses to other parties to the Undertaking)

*“include a clause requiring the licensor to promptly notify a licensee of any license granted by the it to a third party for the same IPRs under comparable circumstances giving rise to terms and conditions that are clearly more favourable, in their entirety, than those granted to the licensee and allowing the licensee to require replacement of the terms and conditions of its license, in their entirety, either with those of the third party license, or with such other terms and conditions as the parties may agree” (“ETSI Intellectual Property Rights Undertaking”, ETSI/GA15(93)TD 25 para 3.1) (emphasis added).*

However, the IPR policy that was finally adopted and made effective in 1994 did not include the undertaking, nor anything similar to the MFL requirement quoted above, and we find no suggestion in the records of discussions of IPR policy within ETSI, at any time after the rescission of the 1993 policy, that any member argued that the “notice” and “substitution of terms” rights that had been contained in the Undertaking remained implicit in the “non-discriminatory” requirement. Given this history, we conclude that any attempt to equate the “non-discriminatory” component of an ETSI FRAND commitment with thoroughgoing “Most Favoured Licensee” obligations would be mistaken as a matter of intent-based contract interpretation.



### C. “Non-Discriminatory” Does Not Require Identical Terms

In fact, when the ETSI membership turned to developing the replacement policy that was ultimately adopted in 1994, the conversation turned in quite a different direction. Where the Undertaking had specified that similarly situated licensees had a right to *identical* terms, the final text of the “Common Objective” document annexed to the final report of the Special Committee on IPR stated, under the heading “Concerns about most favoured licensee provision,” that while “License terms and conditions should be non-discriminatory,” “this does not necessarily imply identical terms”. Instead, under the heading “Commercial freedom”, the document asserted, “Licensing terms and conditions should allow normal business practices for ETSI members. ETSI should not interfere in licensing negotiations” (ETSI/GA 20(94)2 (SC Final Report), ANNEX XII). Indeed, in subsequent discussion in which the members of the Special Committee were divided into four groups to report views on various issues, three out of the four groups reported agreement that non-discriminatory “does not necessarily imply identical terms”, and the fourth group did not comment on that topic (ETSI/GA 20(94)2 (SC Final Report), ANNEX XVIII, at 4-5).

The sum of these observations is not dramatic. On the one hand, the “non-discriminatory” component of FRAND is more than merely an affirmation of national competition law, because such law may indeed permit outright discrimination in certain circumstances – for example, in favour of exclusive or preferred distributors.<sup>34</sup> On the other hand, in the case of ETSI at least,<sup>35</sup> “ND” clearly means less than a Most Favoured Licensee clause, with an MFL clause having been explicitly repealed, and comment at the time of adoption of the present policy signalling an intention to leave members wide flexibility in agreeing to particular terms with particular licensees depending on the commercial circumstances.

### CONCLUSION

The effort to conflate a contractual FRAND commitment with either idealized economic theory or the competition law of any jurisdiction is ill-conceived. In short, a FRAND commitment and the limitations that competition law may impose on intellectual property rights are simply two separate things, and intellectual clarity requires that each be considered in its own right, and according to the analytical methods appropriate to it.

Our research shows that, if a FRAND commitment is taken seriously as a contract – as it should be – then efforts to look to FRAND as a source of cumulative royalty caps, particular formulas for calculating or apportioning royalties, or limitations on remedies against unlicensed infringers are not only without basis, but are contradicted by the ordinary methods of contract interpretation.

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## ENDNOTES

- <sup>1</sup> Damien Geradin has published a series of articles in combination with other authors, including Anne Layne-Farrar, Jorge Padilla and Miguel Rato, which criticise the various arguments raised in the papers cited in the preceding footnotes on the grounds that these papers were not supported by legal and economic analysis, but instead merely reflected the policy preferences of their authors. See, eg, D Geradin & M Rato, “FRAND Commitment and EC Competition Law: A Reply to Philippe Chappatte” (2009) *European Competition Journal* (forthcoming 2010); D Geradin, “Pricing Abuses by Essential Patent Holders in a Standard-Setting Context: A View from Europe” (2009) 76 *Antitrust Law Journal* 329; D Geradin et al., “Competing Away Market Power? An Economic Assessment of Ex Ante Auctions in Standard Setting” (2008) 4 *European Competition Journal* 443; D Geradin et al., “The Complements Problem Within Standard Setting: Assessing the Evidence on Royalty Stacking” (2008) 14 *Boston University Journal of Science & Technology Law* 144; V DeNicolò et al., “Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-Practicing Patent Holders” (2008) 4 *Journal of Competition Law and Economics* 571; D Geradin & M Rato, “Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-up, Royalty-Stacking and the Meaning of

FRAND” (2007) 3 European Competition Law Journal 101.

<sup>2</sup> In the *Qualcomm* case, six firms active in the mobile phone equipment sector filed complaints with the European Commission in the latter part of 2005 alleging that Qualcomm’s licensing terms and conditions for its patents essential to the WCDMA standard did not comply with Qualcomm’s FRAND commitment and, therefore, breached EU competition rules. “Commission initiates formal proceedings against Qualcomm”, Memo/07/389, (1 October 2007), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/389>. After a long and thorough investigation, the Commission eventually decided to close its formal proceedings against Qualcomm. “Commission closes formal proceedings against Qualcomm”, MEMO/09/516, (24 November 2009).

<sup>3</sup> J Miller, “Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm” (2007) 40 *Indiana Law Review* 351 (“The RAND promise, embedded in SSO bylaws to which participants agree, is primarily a matter of contract law.”); M Lemley, “Intellectual Property Rights and Standard-Setting Organizations” (2002) 90 *California Law Review* 1889, 1909 (“SSO IP rules have legal significance only to the extent they are enforceable. Because the IP policies are at base agreements by members of the SSO to abide by certain rules regarding IP ownership, their enforceability is initially a question of contract law.”).

<sup>4</sup> Section 6.1 of ETSI’s IPR policy provides that when essential IPR is disclosed, ETSI will request—but not oblige—the owner of the IPR to undertake in writing that it is prepared to grant irrevocable licences on FRAND terms and conditions, and as such to waive its right to refuse to offer a licence to those seeking one. Under the ANSI Patent Policy, “disclosure may be made by a patent holder or third party with actual, personal knowledge of relevant patents. Once such a disclosure is made, ANSI requires a written statement in order to determine whether the patent holder will provide licenses (a) on reasonable and non-discriminatory (“RAND”) terms and conditions or (b) on a compensation-free basis (that may include other RAND terms and conditions). If the patent holder submits a patent statement to the effect of either (a) or (b) above, then this creates a commitment by the patent holder and third-party beneficiary rights in implementers of the standard.” ANSI,

*ANSI Activities Related to IPR and Standards*, submitted to the Global Standards Collaboration, IPR Working Group Meeting, Chicago, June 2006 (GSC11/IPRWG(06)10) at p.4.

<sup>5</sup> Section 8 of the ETSI IPR Policy contains a mechanism for dealing with the “non-availability of licences” including a member’s refusal to licence on FRAND terms. Where an IPR owner informs ETSI of such a refusal prior to the publication of a standard, the General Assembly first tries to find a “viable alternative technology”. If none exists, and the IPR owner refuses to reconsider its position, there is a procedure for ETSI to decide whether ETSI “should pursue development of the concerned parts of the STANDARD or a TECHNICAL SPECIFICATION based on the non-available technology and should look for alternative solutions.” (§ 8.1.3) Similarly, ANSI has said that under the ANSI Patent Policy, if “[licensing] assurances are not forthcoming or if potential users can show that the policy is not being followed, the standard may be withdrawn either by the consensus committee or through the appeals process.” GSC11/IPRWG(06)10 at p.5.

<sup>6</sup> The intent of the parties also plays a fundamental role in the interpretation of contracts in Civil Law systems. See, for instance, Article 1156 of the French Civil Code whereby the judge must search for the intent of the parties when the contract was concluded or modified. Under this provision, the “subjective intent” of the parties (“what they really meant”) is more important than the literal language of the contract itself.

<sup>7</sup> See for instance Case C-336/07 *Kabel Deutschland* [2008] ECR I-10889 para 46 (discussing the notion of “reasonable” “must carry” obligations that may be imposed by EU Member States upon cable operators on the basis of the Universal Service Directive).

<sup>8</sup> Not all standard implementers seeking to obtain a license from a given essential patent holder will be similarly situated. Generally, a range of variables will traditionally be negotiated between licensors and licensees, all of which may be of appreciable value, such as cross-licencing, volume of licensed products, exhaustion of patent rights, technology transfer, technical support, upfront fees, jurisdiction, scope of license (eg, products, territory, have made rights, etc.), possible product purchases, the formation of broader business relationships and cooperation, etc. Granting a license cannot be confused with selling a product at a standard price (which



- would be the royalty). Because licensors and licensees seek to exchange a potentially diverse assortment of “value” (the royalties being just one possible elements of consideration), any interpretation of a FRAND commitment as “dictating or specifying a particular licencing result” would prove a Procrustean bed.
- <sup>9</sup> In this respect, FRAND is very much akin to a general clause, albeit a contractual one. “General clauses or standards (‘Generalklauseln’, ‘clauses générales’) are legal rules which are not precisely formulated, terms and concepts which in fact do not even have a clear core. They are often applied in varying degrees in various legal systems to a rather wide range of contract cases when certain issues arise such as abuse of rights, unfairness, good faith, fairness of duty or loyalty or honesty, duty of care, and other such contract terms not lending themselves readily to clear or permanent definition.” S Grundmann & D Mazeaud (eds), *General Clauses and Standards In European Contract Law – Comparative Law, EC Law and Contract Law Codification*” (2006).
- <sup>10</sup> For instance, nothing can be read in such extracts as suggesting that FRAND imposes any specific and concrete obligations on the owner of standard essential patents with regard to the actual level of royalties or any other terms and conditions provided for in licencing agreements. Nokia’s Vice President for Intellectual Property Rights, Dr. Ilkka Rahnasto, makes a similar observation. He explains that “the [FRAND] rule leaves the determination of exact terms for the parties to decide. This case-by-case determination allows parties to a particular licencing transaction to find their own interpretation of ‘fair and reasonable’.” I. Rahnasto, *Intellectual Property Rights, External Effects and Anti-trust Law* (OUP, 2003) 4.105. He further adds: “In connection with standardization, the term “fair and reasonable” is usually understood as a reference to the economic reality. Generally, a licence is fair and reasonable if the terms would be acceptable in arm’s-length-negotiations.” *Ibid* 6.34. “Fair and reasonable” licencing terms would therefore consist of those terms determined through fair, bilateral negotiations between individual IPR owner and standard implementer in accordance with the market conditions prevailing at the time of such negotiations.
- <sup>11</sup> We use the ETSI nomenclature to identify ETSI documents. Thus, this ETSI Technical Assembly (“TA”) document was attached to “Temporary Document” number 20, submitted at the 11th ETSI General Assembly meeting in 1991.
- <sup>12</sup> Enclosure to letter dated 29 October 1992 from CCITT to Eurobit.
- <sup>13</sup> For example, an ETSI Special Committee on IPR appointed in 1994 to propose provisions for an IPR policy included representatives of AT&T, Bosch, IBM, Motorola, Nokia, Philips, and Siemens, in addition to a number of less multi-national corporations. See ETSI/GA 20(94)2, ANNEX IV, at 89.
- <sup>14</sup> For example, IBM called the proposal “a source of deep divisions within the ETSI membership” and stated that for “many members it is the company’s strategic assets and policies which are at stake”. ETSI/GA15(93)26. IBM said “IBM has to evaluate now its future involvement in ETSI”. ETSI/GA15(93)6. Other companies said words to the same effect. ETSI/GA15(93)23.
- <sup>15</sup> “ETSI received between 12-14 letters from parties . . . who threatened to pull out of ETSI if it implemented the 1993 Policy.” E J Iversen, “Standardization and Intellectual Property Rights: ETSI’s controversial search for new IPR-procedures” (September 1999) (Paper presented at the first IEEE conference on standardisation and innovation in information technology, Aachen, Germany).
- <sup>16</sup> The threats of participants such as IBM to withdraw from ETSI, and the Chairman’s comment quoted above, raise the interesting point that an SSO—even an SSO such as ETSI which has been granted a supposed monopoly position by law or regulation—does not have an unconstrained ability to set restrictive IPR policies. Development of successful next-generation standards in high technology fields can only be accomplished through the intensive efforts of the industry leaders, and unpalatable SSO IPR policies may cause key players to channel those efforts through other SSOs. See also Communication of the Commission “Modernising ICT Standardisation in the EU - The Way Forward” (3 July 2009) Com (09) 324 final para 1 (noting the emergence of global fora and consortia as “world-leading [Information and Communication Technology] standards development bodies,” and stating that “the EU risks becoming irrelevant in ICT standard setting”).
- <sup>17</sup> For a discussion of this proposal and the negative impact it would have had, see D Geradin, “Standardization and Technological Innovation: Some Reflections on Ex-ante Licensing, FRAND, and the Proper Means to Reward Innovators” (2006) 29 World Competition 511.

- <sup>18</sup> The intended beneficiaries of a FRAND declaration appear to be any parties who wish to perform actions identified in Paragraph 6 of the ETSI IPR Policy with respect to a standard-compliant product. This includes those who wish to “manufacture, including the right to make or have made customized components and sub-systems to the licensee’s own design for use in manufacture”. The ability of intended third party beneficiaries of a contract to enforce their rights under that contract is well recognized within the Common Law Tradition, while Civil Law jurisdictions provide comparable enforcement rights under (in the case of France, for example) the doctrine of “stipulation pour autrui”. Fr. Civil Code Art. 1121.
- <sup>19</sup> *Micro Chem., Inc. v Lextron, Inc.* 317 F 3d 1387, 1394 [Fed Cir 2003] (discussing the differences between the experts’ opinions regarding royalty rates and affirming jury’s determination as reasonable); *Rite-Hite Corp v Kelley Co., Inc.* 56 F 3d 1538, 1554-55 [Fed. Cir. 1995] (noting range of possible royalties and affirming lower court’s determination of royalty rate as reasonable); *Monsanto Co. v Ralph* 382 F 3d 1374, 1383 [Fed. Cir. 2004] (giving deference to jury’s determination of royalty rate based on expert testimony regarding *Georgia-Pacific* factors).
- <sup>20</sup> It must, however, be noted that in Europe, by contrast with the United States, injunctive relief is considered the primary remedy for patent infringement, over and above monetary compensation. Moreover, any damages awarded must only be compensatory in nature and may not have a punitive character. For these reasons, many cases are settled out of court after a finding of patent infringement and the existing case law on the calculation of damages is therefore very sparse.
- <sup>21</sup> Cour de Cassation (Ch. Comm.) (France), *Sté Ets Delaplace et Sté Sicma c. Sté Van Der Lely*, 19 February 1991, [1991] *Annales de la Propriété Industrielle*, 4 (noting that the lower court had correctly exercised its judicial discretion in determining the royalty rate serving as the basis for damages after a finding of patent infringement). See also the example given of a “notional” royalty rate set by the UK Court of Appeal in a copyright case: *Nigel Christopher Blayney (t/a Aardvark Jewellery) v (1) Clogeau St Davids Gold Mines* [2003] F.S.R. 19.
- <sup>22</sup> The non-exhaustive list of 15 factors identified by the *Georgia Pacific* court is provided in the Appendix.
- <sup>23</sup> *General Tire & Rubber Co. v Firestone Tyre & Rubber Co.* [1975] F.S.R. 273 (H.L.) (“[E]vidence may consist of the practice, as regards royalty, in the relevant trade or in analogous trades; perhaps of expert opinion expressed in publications or in the witness box; possibly of the profitability of the invention; and any other factor on which the judge can decide the measure of loss.”); Sec. 139 Para. 2 German Patent Act (royalty rate of a hypothetical license agreement must be determined in the light of all relevant circumstances).
- <sup>24</sup> *Flint v Lovell* [1935] 1 K.B. 354 (CA) (Greer, L.J.) (explaining that an award of damages is reversible only if “the amount awarded [is] an entirely erroneous estimate of the damage to which the plaintiff is entitled”).
- <sup>25</sup> At least one US court has adopted the *Georgia-Pacific* factors to assess the reasonableness of a licensing offer challenged on FRAND grounds. *ESS Tech., Inc. v PC-Tel, Inc.*, No. C-99-20292, 2001 WL 1891713, 3–6 [N.D. Cal. Nov. 28, 2001].
- <sup>26</sup> “(1) A binding integrated agreement discharges prior agreements to the extent that it is inconsistent with them. (2) A binding completely integrated agreement discharges prior agreements to the extent that they are within its scope. (3) An integrated agreement that is not binding or that is voidable and avoided does not discharge a prior agreement. But an integrated agreement, even though not binding, may be effective to render inoperative a term which would have been part of the agreement if it had not been integrated” (*Restatement (Second) of Contracts* (1981) § 213).
- <sup>27</sup> RA Lord 11 *Williston on Contracts* (4th ed 2009) § 33:26 (“[E]vidence of a collateral agreement is not barred by the parol evidence rule if such evidence does not contradict the written contract.”).
- <sup>28</sup> See for example *Maxwell v J. Baker, Inc.* 86 F 3d 1098, 1109-10 [Fed. Cir. 1996] (“[T]hat an infringer had to be ordered by a court to pay damages, rather than agreeing to a reasonable royalty, is also relevant” to “an amount sufficient to adequately compensate the patentee for the infringement”); *Stickley v Heublein, Inc.* 716 F 2d 1550, 1563 [Fed. Cir. 1983]; *Endress & Hauser, Inc. v Hawk Measurement Sys. Pty. Ltd.* 892 F. Supp 1123, 1130 [S.D. Ind. 1995] (“Although courts employ the “willing licensor/willing licensee” model as the basis for determining a reasonable royalty, they do so with the understanding that a “reasonable” royalty after infringement is likely to be higher than that arrived at between truly willing pat-

ent owners and licensees.”); V. E. O’Brien, “Economics & Key Patent Damages Cases” (2000) 9 University of Baltimore Intellectual Property 1, 19 & 20 n.70 (observing that “the hypothetical negotiation already has a built-in bias toward a royalty rate that is higher than those observed in practice” and that the Federal Circuit often sustains awards “based on a royalty several times that observed in the real world”).

<sup>29</sup> For a discussion of the dispute see “Antitrust: Commission welcomes IPRCom’s public FRAND declaration”, MEMO/09/549, Brussels (Dec. 10, 2009) (European Commission welcoming “the public declaration by German IP licensing company IPRCom, following discussions with the Commission, that it is ready to take over Bosch’s previous commitment to grant irrevocable licenses on fair, reasonable and non-discriminatory (FRAND) terms to patents held by IPRCom which are essential for various standards set by the European Telecommunications Standard Institute (ETSI) and Universal Mobile Telecommunications System (UMTS)”, <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/549&format=HTML&aged=0&language=EN> accessed on Mar. 7, 2010.

<sup>30</sup> N-Data refers to NEGOTIATED DATA SOLUTIONS LLC.

<sup>31</sup> ETSI/GA11(91)8 was an agreement between ETSI and the Standards Institution of Israel approved at the 11th ETSI General Assembly in 1991.

<sup>32</sup> ETSI/GA12(92)TD 16 3 (expresses concerns that ETSI standards “must in principle be made available on a national treatment basis in order to meet the Community’s international obligations”); ETSI/GA12(92)TD 3 2 (ANSI submission expressing concern that “ETSI members have the apparent ability to decline to license IPRs to certain manufacturers . . . based on the manufacturer’s country of residence or the origin of the manufactured goods”); ETSI/

IPR/GA(92)TD 5 3 (Statement of Commission Representative emphasizing that, under the Technical Barriers to Trade Agreement, “the parties to that Agreement are entitled to treatment equal to that given to Community nationals and to equal treatment as between one another.”).

<sup>33</sup> See ETSI/GA12(92)TD 19 5 (Submission of the Chairman of the ETSI Technical Assembly, asserting that, under the then-proposed policy, “In particular members and non members within the Community are treated the same.”); ETSI/IPR/GA(92)TD 5 3 (Statement of the Commission of the European Communities (“CEC”) noting that “there is the question of the position of non-ETSI members”, and asserting that “standards, including IPR’s, must be available to all potential users within the Community on equivalent or comparable terms . . . .”); ETSI/GA14(92)TD 20 3 (Letter of the CEC to ETSI stating, “The Commission considers that non-members of ETSI should not receive less favourable terms merely because they are not members.”).

<sup>34</sup> See, e.g., *Volvo Trucks N. Am., Inc. v. Reeder-Simco GMC, Inc.*, 546 U.S. 164 176 [2006] (approving preferred dealership discounts); *E & L Consulting, Ltd. v. Doman Indus. Ltd.*, 472 F.3d 23 29 [2d Cir. 2006] [a lower Federal court case] (“It is not a violation of the antitrust laws, without a showing of actual adverse effect on competition market-wide, for a manufacturer to . . . appoint an exclusive distributor.” (internal quotation marks and citation omitted)).

<sup>35</sup> However, in this respect the ETSI reading of “non-discriminatory” appears to be consistent with that of ANSI, which has said explicitly that “RAND does not mean that each licensee will receive exactly the same set of terms and conditions because other considerations (such as reciprocal cross-licensing) may be a factor.” GSC11/IPRWG(06)10, at p.7.

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## EXHIBIT 15

**Patent Statement and Licensing Declaration Form for ITU-T/ITU-R Recommendation |  
ISO/IEC Deliverable**



**Patent Statement and Licensing Declaration  
for ITU-T/ITU-R Recommendation | ISO/IEC Deliverable**

*This declaration does not represent an actual grant of a license*

Please return to the relevant organization(s) as instructed below per document type:

<b>Director</b>	<b>Director</b>	<b>Secretary-General</b>	<b>General Secretary</b>
Telecommunication Standardization Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5853 Email: <a href="mailto:tsbdir@itu.int">tsbdir@itu.int</a>	Radiocommunication Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5785 Email: <a href="mailto:brmail@itu.int">brmail@itu.int</a>	International Organization for Standardization 1 Chemin de la Voie-Creusc CH-1211 Geneva 20 Switzerland Fax: +41 22 733 3430 Email: <a href="mailto:patent.statements@iso.org">patent.statements@iso.org</a>	International Electrotechnical Commission 3 rue de Varembe CH-1211 Geneva 20 Switzerland Fax: +41 22 919 0300 Email: <a href="mailto:inmail@iec.ch">inmail@iec.ch</a>

**Patent Holder:**

Legal Name Motorola Mobility, Inc

**Contact for license application:**

Name & Department Ray Warren, Law Department

Address 600 N. US Highway 45

Libertyville, Illinois, U.S.A.

Tel. +1-847-523-0668

Fax +1-847-761-4731

E-mail Ray.Warren@motorola.com

URL (optional) \_\_\_\_\_

**Document type:**



ITU-T Rec. (\*)



ITU-R Rec. (\*)



ISO Deliverable (\*)



IEC Deliverable (\*)

(please return the form to the relevant Organization)



Common text or twin text (ITU-T Rec. | ISO/IEC Deliverable (\*)) (for common text or twin text, please return the form to each of the three Organizations: ITU-T, ISO, IEC)



ISO/IEC Deliverable (\*) (for ISO/IEC Deliverables, please return the form to both ISO and IEC)

(\*)Number ITU-T H.264(03/2010)

(\*)Title Advanced video coding for generic audiovisual services



**Licensing declaration:**

The Patent Holder believes that it holds granted and/or pending applications for patents, the use of which would be required to implement the above document and hereby declares, in accordance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC, that (check one box only):



1. The Patent Holder is prepared to grant a free of charge license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and under other reasonable terms and conditions to make, use, and sell implementations of the above document.

Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC.

Also mark here ☐ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.

Also mark here ☐ if the Patent Holder reserves the right to license on reasonable terms and conditions (but not free of charge) to applicants who are only willing to license their patent claims, whose use would be required to implement the above document, on reasonable terms and conditions (but not free of charge).



2. The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document.

Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO, or IEC.

Also mark here ☒ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.



3. The Patent Holder is unwilling to grant licenses in accordance with provisions of either 1 or 2 above.

In this case, the following information must be provided to ITU, and is strongly desired by ISO and IEC, as part of this declaration:

- granted patent number or patent application number (if pending);
- an indication of which portions of the above document are affected;
- a description of the patent claims covering the above document.

**Free of charge:** The words "free of charge" do not mean that the Patent Holder is waiving all of its rights with respect to the essential patent. Rather, "free of charge" refers to the issue of monetary compensation; i.e., that the Patent Holder will not seek any monetary compensation as part of the licensing arrangement (whether such compensation is called a royalty, a one-time licensing fee, etc.). However, while the Patent Holder in this situation is committing to not charging any monetary amount, the Patent Holder is still entitled to require that the implementer of the above document sign a license agreement that contains other reasonable terms and conditions such as those relating to governing law, field of use, reciprocity, warranties, etc.

**Reciprocity:** As used herein, the word "reciprocity" means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same above document free of charge or under reasonable terms and conditions.

**Signature:**

Patent Holder

Motorola Mobility, Inc.

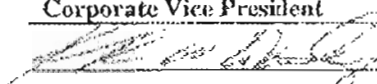
Name of authorized person

Kirk W. Dailey

Title of authorized person

Corporate Vice President

Signature



Place, Date

Libertyville, Illinois, U.S.A., December 8, 2010

FORM: 1 March 2007

Patent Information (desired but not required for options 1 and 2; required in ITU for option 3 (NOTE))				
No.	Status (granted/ pending)	Country	Granted Patent Number or Application Number (if pending)	Title
1	Granted	United States	6987888	FREQUENCY COEFFICIENT SCANNING PATHS FOR CODING DIGITAL VIDEO CONTENT
2	Granted	United States (Japan European Patent Convention)	7421025	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
3	Granted	United States (Japan European Patent Convention)	7310375	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
4	Granted	United States (European Patent Convention)	7310374	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
5	Granted	United States	7310376	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
6	Granted	United States	7310377	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
7	Granted	United States (European Patent Convention)	7477690	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
8	Granted	United States (European Patent Convention)	7817718	MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
9	Granted	United States (China P.R. European Patent Convention  Republic of Korea Mexico)	7769087	PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
10	Granted	United States (China P.R. European Patent Convention  Mexico)	7660353	PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT
11	Granted	United States	7162094	FREQUENCY COEFFICIENT SCANNING PATHS FOR DIGITAL VIDEO CONTENT

NOTE: For option 3, the additional minimum information that shall also be provided is listed in the option 3 box above.

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**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

**Recommendation number:** T-REC-H.264

**Statement Id:** H264-30

**Patent holder/Organization:** General Instrument Corp

**Main contact:** Mr. Paul Bawel, Director, Law department

**Address:** 101 Tournament Drive  
Horsham, PA 19044  
United States

**Tel. No.:** +1 215 323 1907

**Fax. No.:** +1 215 323 1300

**Declaration form version:** 15 June 2002 (Common Text)

**Licensing declaration:** Option 2\_ The Patent Holder will grant a license to an unrestricted number of applicants on a worldwide, nondiscriminatory basis and on reasonable terms and conditions to use the patented material necessary in order to manufacture, use, and/or sell implementations of the above ITU-T Recommendation | ISO/IEC International Standard. The patent Holder's willingness to license is conditioned on reciprocity for the above ITU-T Recommendation | ISO/IEC International Standard. Negotiations of licenses are left to the parties concerned and are performed out side the ITU-T | ISO/IEC.

**Patent info:**

None
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**ITU-T registration date:** 2003-12-19

**Statement declaration date:** 2003-12-02

**Statement remarks:** (Note by TSB): General instrument corporation is a wholly owned subsidiary of Motorola. Motorola submitted the statement H264-91 on 2008-11-03 to provide updated information relative to this statement (see H264-91).



**ITU**  
International Telecommunication Union  
Telecommunication Standardization Sector



**ISO**  
International Organization for Standardization



**IEC**  
International Electrotechnical Commission



19 dec 2003  
H264-30

**Patent Statement and Licensing Declaration**

**for a common text or twin text ITU-T Recommendation | ISO/IEC International Standard**

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Please return to both organizations:

Director  
Telecommunication Standardization Bureau  
International Telecommunication Union

Place des Nations  
CH-1211 Geneva 20,  
Switzerland  
Fax: +41 22 730 5851

Secretary General  
International Organization for Standardization

1 rue de Varrenbo  
CH-1211 Geneva 20  
Switzerland  
Fax: +41 22 734 1079

**Patent Holder/Organization:**

Legal Name General Instrument Corporation

**Contact for license application:**

Name & Department Paul Bewel  
Law Department

Address 101 Tournament Drive  
Hordham, PA 19044 USA

Tel. 215.323.1907

Fax 215.323.1300

E-mail \_\_\_\_\_

**ITU-T Recommendation | ISO/IEC International Standard:**

Number \_\_\_\_\_

Title \_\_\_\_\_

**Licensing declaration**

The Patent Holder believes that it holds granted patents and/or pending applications, the use of which would be required to implement the above ITU-T Recommendation | ISO/IEC International Standard and hereby declares, in accordance with the Statement on ITU-T Patent Policy (see ITU-T web site) and the ISO/IEC Patent Policy (JTC 1 Directives), that (check one box only).



1. The Patent Holder will grant a royalty-free license to an unrestricted number of applicants on a worldwide, non-discriminatory basis to use the patented material necessary in order to manufacture, use, and/or sell implementations of the above ITU-T Recommendation | ISO/IEC International Standard. Mark here ☐ if the Patent Holder's willingness to license is conditioned on reciprocity for the above ITU-T Recommendation | ISO/IEC International Standard.\*



2. The Patent Holder will grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to use the patented material necessary in order to manufacture, use, and/or sell implementations of the above ITU-T Recommendation | ISO/IEC International Standard. Mark here ☒ if the Patent Holder's willingness to license is conditioned on reciprocity for the above ITU-T Recommendation | ISO/IEC International Standard.\*

Negotiations of licenses are left to the parties concerned and are performed outside the ITU-T | ISO/IEC.

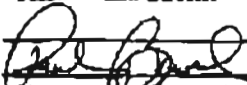


3. The Patent Holder is unwilling to grant licenses in accordance with provisions of either 1 or 2 above. In this case, the following information must be provided as part of this declaration:

- patent registration/application number;
- an indication of which portions of the ITU-T Recommendation | ISO/IEC International Standard are affected.
- a description of the patent claims covering the ITU-T Recommendation | ISO/IEC International Standard;

"Reciprocity" means with respect to other parties that have a patent or patent claim required in the use or implementation of the relevant ITU-T Recommendation(s) / ISO/IEC International Standard(s), the Patent Holder shall only be required to license to such parties if they are willing to license their patents or patent claims under options 1 or 2 of the Patent Statement and Licensing Declaration.

**Signature**

Organization	General Instrument Corporation
Name of authorized person	Paul Rowel
Title of authorized person	Sector IP Law Director
Signature	
Place, Date	Morristown, NJ 2 December 2001

**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

**Recommendation number:** T-REC-H.264

**Statement Id:** H264-81

**Patent holder/Organization:** Motorola Inc.

**Main contact:** Ms. Latonia Gordon, Intellectual Property and Licensing Dept.

**Address:** 1303 E. Algonquin Road  
Schaumburg, IL 60196  
United States

**Tel. No.:** +1 847 576 3055

**Fax. No.:** +1 847 538 3666

**Declaration form version:** 1 March 2007 (Individual, Common Text, General)

**Licensing declaration:** Option 2\_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.

**Patent info:**

Patent Number	Application Number	Country	Foreign Counterparts	Title	Status	TSB Remark	TSB Patent Id	TSB Old Patent Id
6005 980		US		Motion estimation and compensation of video object planes for interlaced digital video	Granted		H264-81-01	
6 980 596		US		Macroblock level adaptive frame/field coding for digital video content	Granted		H264-81-02	

5235419		US		Adaptive motion compensation	Granted		H264- 81-03	
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**ITU-T registration date:** 2007-08-20

**Statement declaration date:** 2007-08-10

**Statement remarks:** The statement provides the complementary information to the statment  
H264-30 submitted on 19 December 2003.

**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

**Recommendation number:** T-REC-H.264

**Statement Id:** H264-91

**Patent holder/Organization:** Motorola Inc.

**Main contact:** Ms. Latonia Gordon, Intellectual Property and Licensing Dept.

**Address:** 1303 E. Algonquin Road  
Schaumburg, IL 60196  
United States

**Tel. No.:** +1 847 576 3055

**Fax. No.:** +1 847 538 3666

**Declaration form version:** 1 March 2007 (Individual, Common Text, General)

**Licensing declaration:**

Option 2\_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.

**Patent info:**

Patent Number	Application Number	Country	Foreign Counterparts	Title	Status	TSB Remark	TSB Patent Id	TSB Old Patent Id
7620094		US		Frequency coefficient scanning paths for digital video content	Granted		H264-91-01	
RE 38564		US		Motion estimation and compensation of video object planes for interlaced digital video	Granted		H264-91-02	
5 376		US		Adaptive	Granted		H264-	

968				compression of digital video data			91-03	
6 807 317		US		Method and decoder system for reducing quantization effects of a decoded image	Granted		H264-91-04	
6 836 514		US		Method for the detection and recovery of errors in the frame overhead of digital video decoding systems	Granted		H264-91-05	

**ITU-T registration date:** 2008-11-03

**Statement declaration date:** 2008-10-29

**Statement remarks:** Motorola submitted this statement to provide updated information relative to their earlier statement in H.264-30 (submitted 2003-12-19).

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Please return to the relevant organization(s) as instructed below per document type:

<b>✕ Director</b>	<b>Director</b>	<b>Secretary-General</b>	<b>General Secretary</b>
Telecommunication Standardization Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5853 Email: <a href="mailto:tsbdir@itu.int">tsbdir@itu.int</a>	Radiocommunication Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5785 Email: <a href="mailto:brmail@itu.int">brmail@itu.int</a>	International Organization for Standardization 1 Chemin de la Voie-Creuse CH-1211 Geneva 20 Switzerland Fax: +41 22 733 3430 Email: <a href="mailto:patent.statements@iso.org">patent.statements@iso.org</a>	International Electrotechnical Commission 3 rue de Varembe CH-1211 Geneva 20 Switzerland Fax: +41 22 919 0300 Email: <a href="mailto:inmail@iec.ch">inmail@iec.ch</a>

**Patent Holder:**

Legal Name Motorola, Inc

**Contact for license application:**

Name & Department Latonia Gordon, Intellectual Property and Licensing Dept.

Address 1303 E. Algonquin Road, Schaumburg, IL 60196

Tel. +1 847-576-3055

Fax +1 847-538-3666

E-mail Latonia.Gordon@Motorola.com

URL (optional) \_\_\_\_\_

**Document type:**

☒ ITU-T Rec. (\*) ☐ ITU-R Rec. (\*) ☐ ISO Deliverable (\*) ☐ IEC Deliverable (\*)

(please return the form to the relevant Organization)

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☐ **ISO/IEC Deliverable (\*)** (for ISO/IEC Deliverables, please return the form to both ISO and IEC)

(\*)Number H.264(2005)-update I.D Number:H.264-30 submitted December 19,2003

(\*)Title Advanced Video Coding for Generic Audiovisual Services,

**Licensing declaration:**

The Patent Holder believes that it holds granted and/or pending applications for patents, the use of which would be required to implement the above document and hereby declares, in accordance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC, that (check one box only):

☐

1. The Patent Holder is prepared to grant a free of charge license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and under other reasonable terms and conditions to make, use, and sell implementations of the above document.

Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC.

Also mark here ☐ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.

Also mark here ☐ if the Patent Holder reserves the right to license on reasonable terms and conditions (but not free of charge) to applicants who are only willing to license their patent claims, whose use would be required to implement the above document, on reasonable terms and conditions (but not free of charge).

☒

2. The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document.

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Also mark here ☒ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.

☐

3. The Patent Holder is unwilling to grant licenses in accordance with provisions of either 1 or 2 above.

In this case, the following information must be provided to ITU, and is strongly desired by ISO and IEC, as part of this declaration:

- granted patent number or patent application number (if pending);
- an indication of which portions of the above document are affected;
- a description of the patent claims covering the above document.

**Free of charge:** The words "free of charge" do not mean that the Patent Holder is waiving all of its rights with respect to the essential patent. Rather, "free of charge" refers to the issue of monetary compensation; i.e., that the Patent Holder will not seek any monetary compensation as part of the licensing arrangement (whether such compensation is called a royalty, a one-time licensing fee, etc.). However, while the Patent Holder in this situation is committing to not charging any monetary amount, the Patent Holder is still entitled to require that the implementer of the above document sign a license agreement that contains other reasonable terms and conditions such as those relating to governing law, field of use, reciprocity, warranties, etc.

**Reciprocity:** As used herein, the word "reciprocity" means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same above document free of charge or under reasonable terms and conditions.

**Signature:**

Patent Holder

Motorola, Inc.

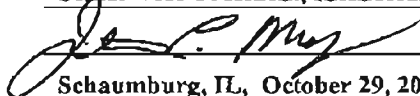
Name of authorized person

Jonathan Meyer

Title of authorized person

Senior Vice-President, Intellectual Property Licensing

Signature



Place, Date

Schaumburg, IL, October 29, 2008

FORM: 1 March 2007



<b>Patent Information</b> (desired but not required for options 1 and 2; required in ITU for option 3 (NOTE))				
<b>No.</b>	<b>Status</b> [granted/ pending]	<b>Country</b>	<b>Granted Patent Number or Application Number (if pending)</b>	<b>Title</b>
1	Granted	US	7,162,094	Frequency Coefficient Scanning Paths For Digital Video Content
2	Granted	US	RE38564	Motion Estimation And Compensation Of Video Object Planes For Interlaced Digital Video
3	Granted	US	5,376,968	Adaptive Compression Of Digital Video Data

**NOTE:** For option 3, the additional minimum information that shall also be provided is listed in the option 3 box above.

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**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

**Recommendation number:** T-REC-H.264

**Statement Id:** H264-101

**Patent holder/Organization:** Motorola Mobility, Inc

**Main contact:** Ray Warren, Law Department  
600 N. US Highway 45

**Address:** Libertyville, IL  
United States

**Tel. No.:** +1-847-523-0668

**Fax. No.:** +1-847-761-4731

**Declaration form version:** 1 March 2007 (Individual, Common Text, General)

**Licensing declaration:** Option 2\_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.

**Patent info:**

Patent Number	Application Number	Country	Foreign Counterparts	Title	Status	TSB Remark	TSB Patent Id	TSB Old Patent Id
6987888		US		FREQUENCY COEFFICIENT SCANNING PATHS FOR CODING DIGITAL VIDEO CONTENT	Granted		H264-101-01	
7421025		US		MACROBLOCK LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL	Granted	(Japan European Patent Convention)	H264-101-02	

				VIDEO CONTENT				
731037 5		US		MACROBLOC K LEVEL ADAPTIVE FRAME/FIEL D CODING FOR DIGITAL VIDEO CONTENT	Grante d	(Japan European Patent Convention)	H264 -101- 03	
731037 4		US		MACROBLOC K LEVEL ADAPTIVE FRAME/FIEL D CODING FOR DIGITAL VIDEO CONTENT	Grante d	(European Patent Convention)	H264 -101- 04	
731037 6		US		MACROBLOC K LEVEL ADAPTIVE FRAME/FIEL D CODING FOR DIGITAL VIDEO CONTENT	Grante d		H264 -101- 05	
731037 7		US		MACROBLOC K LEVEL ADAPTIVE FRAME/FIEL D CODING FOR DIGITAL VIDEO CONTENT	Grante d		H264 -101- 06	
747769 0		US		MACROBLOC K LEVEL ADAPTIVE FRAME/FIEL D CODING FOR DIGITAL VIDEO CONTENT	Grante d	(European Patent Convention)	H264 -101- 07	
781771 8		US		MACROBLOC K LEVEL ADAPTIVE	Grante d	(European Patent Convention)	H264 -101- 08	

				FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT				
7769087		US		PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT	Granted	(China P.R. European Patent Convention Republic of Korea Mexico)	H264-101-09	
7660353		US		PICTURE LEVEL ADAPTIVE FRAME/FIELD CODING FOR DIGITAL VIDEO CONTENT	Granted	(China P.R. European Patent Convention Mexico)	H264-101-10	
7162094		US		FREQUENCY COEFFICIENT SCANNING PATHS FOR DIGITAL VIDEO CONTENT	Granted		H264-101-11	

**ITU-T registration date:** 2010-12-09

**Statement declaration date:** 2010-12-08

**Statement remarks:** Motorola submitted this statement to provide updated information relative to their earlier statement in H.264-30 (submitted 2003-12-19) and in in H.264-91 (submitted 2008-11-3).

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<b>* Director</b>	<b>Director</b>	<b>Secretary-General</b>	<b>General Secretary</b>
Telecommunication Standardization Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5853 Email: <a href="mailto:tsbdir@itu.int">tsbdir@itu.int</a>	Radiocommunication Bureau International Telecommunication Union Place des Nations CH-1211 Geneva 20, Switzerland Fax: +41 22 730 5785 Email: <a href="mailto:brmail@itu.int">brmail@itu.int</a>	International Organization for Standardization 1 Chemin de la Voie-Creuse CH-1211 Geneva 20 Switzerland Fax: +41 22 733 3430 Email: <a href="mailto:patent.statements@iso.org">patent.statements@iso.org</a>	International Electrotechnical Commission 3 rue de Varembe CH-1211 Geneva 20 Switzerland Fax: +41 22 919 0300 Email: <a href="mailto:inmail@iec.ch">inmail@iec.ch</a>

**Patent Holder:**

Legal Name Motorola, Inc

**Contact for license application:**

Name & Department Latonia Gordon, Intellectual Property and Licensing Dept.

Address 1303 E. Algonquin Road, Schaumburg, IL 60196

Tel. +1 847-576-3055

Fax +1 847-538-3666

E-mail Latonia.Gordon@Motorola.com

URL (optional) \_\_\_\_\_

**Document type:**

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☐ **ISO/IEC Deliverable (\*)** (for ISO/IEC Deliverables, please return the form to both ISO and IEC)

(\*)Number H.264(2005)-update I.D Number:H.264-30 submitted December 19,2003

(\*)Title Advanced Video Coding for Generic Audiovisual Services,

**Licensing declaration:**

The Patent Holder believes that it holds granted and/or pending applications for patents, the use of which would be required to implement the above document and hereby declares, in accordance with the Common Patent Policy for ITU-T/ITU-R/ISO/IEC, that (check one box only):

☐ 1. The Patent Holder is prepared to grant a free of charge license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and under other reasonable terms and conditions to make, use, and sell implementations of the above document.

Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC.

Also mark here ☐ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.

Also mark here ☐ if the Patent Holder reserves the right to license on reasonable terms and conditions (but not free of charge) to applicants who are only willing to license their patent claims, whose use would be required to implement the above document, on reasonable terms and conditions (but not free of charge).

☒ 2. The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document.

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Also mark here ☒ if the Patent Holder's willingness to license is conditioned on reciprocity for the above document.

☐ 3. The Patent Holder is unwilling to grant licenses in accordance with provisions of either 1 or 2 above.

In this case, the following information must be provided to ITU, and is strongly desired by ISO and IEC, as part of this declaration:

- granted patent number or patent application number (if pending);
- an indication of which portions of the above document are affected;
- a description of the patent claims covering the above document.

**Free of charge:** The words "free of charge" do not mean that the Patent Holder is waiving all of its rights with respect to the essential patent. Rather, "free of charge" refers to the issue of monetary compensation; i.e., that the Patent Holder will not seek any monetary compensation as part of the licensing arrangement (whether such compensation is called a royalty, a one-time licensing fee, etc.). However, while the Patent Holder in this situation is committing to not charging any monetary amount, the Patent Holder is still entitled to require that the implementer of the above document sign a license agreement that contains other reasonable terms and conditions such as those relating to governing law, field of use, reciprocity, warranties, etc.

**Reciprocity:** As used herein, the word "reciprocity" means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same above document free of charge or under reasonable terms and conditions.

**Signature:**

Patent Holder

Motorola, Inc.

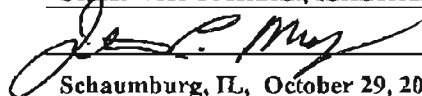
Name of authorized person

Jonathan Meyer

Title of authorized person

Senior Vice-President, Intellectual Property Licensing

Signature



Place, Date

Schaumburg, IL, October 29, 2008

FORM: 1 March 2007

<b>Patent Information</b> (desired but not required for options 1 and 2; required in ITU for option 3 (NOTE))				
<b>No.</b>	<b>Status</b> [granted/ pending]	<b>Country</b>	<b>Granted Patent Number or Application Number (if pending)</b>	<b>Title</b>
1	Granted	US	7,162,094	Frequency Coefficient Scanning Paths For Digital Video Content
2	Granted	US	RE38564	Motion Estimation And Compensation Of Video Object Planes For Interlaced Digital Video
3	Granted	US	5,376,968	Adaptive Compression Of Digital Video Data

**NOTE:** For option 3, the additional minimum information that shall also be provided is listed in the option 3 box above.

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Place des Nations CH-1211 Geneva 20, Switzerland	Place des Nations CH-1211 Geneva 20, Switzerland	1 Chemin de la Voie-Creuse CH-1211 Geneva 20 Switzerland	3 rue de Varembé CH-1211 Geneva 20 Switzerland
Fax: +41 22 730 5853	Fax: +41 22 730 5785	Fax: +41 22 733 3430	Fax: +41 22 919 0300
Email: <a href="mailto:tsbdir@itu.int">tsbdir@itu.int</a>	Email: <a href="mailto:brmail@itu.int">brmail@itu.int</a>	Email: <a href="mailto:patent.statements@iso.org">patent.statements@iso.org</a>	Email: <a href="mailto:inmail@iec.ch">inmail@iec.ch</a>

**Patent Holder:**

Legal Name Motorola, Inc

**Contact for license application:**

Name & Department Latonia Gordon, Intellectual Property and Licensing Dept.

Address 1303 E. Algonquin Road, Schaumburg, IL 60196

Tel. +1 847-576-3055

Fax +1 847-538-3666

E-mail Latonia.Gordon@Motorola.com

URL (optional) \_\_\_\_\_

**Document type:**

☒ ITU-T Rec. (\*) ☐ ITU-R Rec. (\*) ☐ ISO Deliverable (\*) ☐ IEC Deliverable (\*)

(please return the form to the relevant Organization)

☒ **Common text or twin text (ITU-T Rec. | ISO/IEC Deliverable (\*)** (for common text or twin text, please return the form to each of the three Organizations: ITU-T, ISO, IEC)

☐ **ISO/IEC Deliverable (\*)** (for ISO/IEC Deliverables, please return the form to both ISO and IEC)

(\*)Number H.264(2005)-update I.D Number:H.264-30 submitted December 19,2003

(\*)Title Advanced Video Coding for Generic Audiovisual Services,

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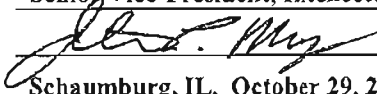
Name of authorized person

Jonathan Meyer

Title of authorized person

Senior Vice-President, Intellectual Property Licensing

Signature



Place, Date

Schaumburg, IL, October 29, 2008

FORM: 1 March 2007

Patent Information (desired but not required for options 1 and 2; required in ITU for option 3 (NOTE))				
No.	Status [granted/ pending]	Country	Granted Patent Number or Application Number (if pending)	Title
1	Granted	US	6,807,317	Method And Decoder System For Reducing Quantization Effects Of A Decoded Image
2	Granted	US	6,836,514	Method For The Detection And Recovery Of Errors In The Frame Overhead Of Digital Video Decoding Systems
3				

*NOTE: For option 3, the additional minimum information that shall also be provided is listed in the option 3 box above.*

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**Patent Statement and Licensing Declaration  
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Telecommunication Standardization Bureau International Telecommunication Union	Radiocommunication Bureau International Telecommunication Union	International Organization for Standardization	International Electrotechnical Commission
Place des Nations CH-1211 Geneva 20, Switzerland	Place des Nations CH-1211 Geneva 20, Switzerland	1 Chemin de la Voie-Creuse CH-1211 Geneva 20 Switzerland	3 rue de Varembé CH-1211 Geneva 20 Switzerland
Fax: +41 22 730 5853	Fax: +41 22 730 5785	Fax: +41 22 733 3430	Fax: +41 22 919 0300
Email: <a href="mailto:tsbdir@itu.int">tsbdir@itu.int</a>	Email: <a href="mailto:brmail@itu.int">brmail@itu.int</a>	Email: <a href="mailto:patent.statements@iso.org">patent.statements@iso.org</a>	Email: <a href="mailto:inmail@iec.ch">inmail@iec.ch</a>

**Patent Holder:**

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Patent Holder

Motorola, Inc.

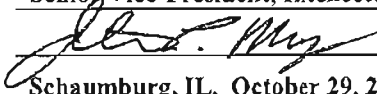
Name of authorized person

Jonathan Meyer

Title of authorized person

Senior Vice-President, Intellectual Property Licensing

Signature



Place, Date

Schaumburg, IL, October 29, 2008

FORM: 1 March 2007



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**Recommendation number:** T-REC-H.264

**Statement Id:** H264-30

**Patent holder/Organization:** General Instrument Corp

**Main contact:** Mr. Paul Bawel, Director, Law department

**Address:** 101 Tournament Drive  
Horsham, PA 19044  
United States

**Tel. No.:** +1 215 323 1907

**Fax. No.:** +1 215 323 1300

**Declaration form version:** 15 June 2002 (Common Text)

**Licensing declaration:** Option 2\_ The Patent Holder will grant a license to an unrestricted number of applicants on a worldwide, nondiscriminatory basis and on reasonable terms and conditions to use the patented material necessary in order to manufacture, use, and/or sell implementations of the above ITU-T Recommendation | ISO/IEC International Standard. The patent Holder's willingness to license is conditioned on reciprocity for the above ITU-T Recommendation | ISO/IEC International Standard. Negotiations of licenses are left to the parties concerned and are performed out side the ITU-T | ISO/IEC.

**Patent info:**

None
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**ITU-T registration date:** 2003-12-19

**Statement declaration date:** 2003-12-02

**Statement remarks:** (Note by TSB): General instrument corporation is a wholly owned subsidiary of Motorola. Motorola submitted the statement H264-91 on 2008-11-03 and the statement H264-101 on 2010-12-09 to provide updated information relative to this statement (see H264-91 and H262-101).

**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

Patent ID	Pat. No.	Patent Holder	Patent No.	ITU-T Recommendation Date	Recommendation Series	Comments	Contact On File
None	H.264 (2005) Amd.3	Motorola Inc.		2007-08-10	28 June 2006 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO, or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-101-01	H.264	Motorola Mobility, Inc	6987888	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-02	H.264	Motorola Mobility, Inc	7421025	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-03	H.264	Motorola Mobility, Inc	7310375	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-04	H.264	Motorola Mobility, Inc	7310374	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-05	H.264	Motorola Mobility, Inc	7310376	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-06	H.264	Motorola Mobility, Inc	7310377	2010-12-09	1 March 2007 (Individual,	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a	Ray Warren, Law

					Common Text, General)	worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Department
H264-101-07	H 264	Motorola Mobility, Inc	7477690	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-08	H.264	Motorola Mobility, Inc	7817718	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-09	H 264	Motorola Mobility, Inc	7769087	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-10	H.264	Motorola Mobility, Inc	7660353	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-101-11	H.264	Motorola Mobility, Inc	7162094	2010-12-09	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ray Warren, Law Department
H264-81-01	H.264	Motorola Inc.	6005 980	2007-08-20	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-81-02	H 264	Motorola Inc.	6 980 596	2007-08-20	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.

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H264-81-03	H.264	Motorola Inc	5235419	2007-08-20	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-91-01	H.264	Motorola Inc	7162094	2008-11-03	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-91-02	H.264	Motorola Inc.	RE 38564	2008-11-03	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-91-03	H.264	Motorola Inc	5 376 968	2008-11-03	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
H264-91-04	H.264	Motorola Inc.	6 807 317	2008-11-03	1 March 2007 (Individual, Common Text, General)	Option 2_ The Patent Holder is prepared to grant a license to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions to make, use and sell implementations of the above document. Negotiations are left to the parties concerned and are performed outside the ITU-T, ITU-R, ISO or IEC. The Patent Holder's willingness to license is conditioned on reciprocity for the above document.	Ms. Latonia Gordon, Intellectual Property and Licensing Dept.
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**Recommendation number:** T-REC-H.264

**Statement Id:** H264-91

**Patent holder/Organization:** Motorola Inc.

**Main contact:** Ms. Latonia Gordon, Intellectual Property and Licensing Dept.

**Address:** 1303 E. Algonquin Road  
Schaumburg, IL 60196  
United States

**Tel. No.:** +1 847 576 3055

**Fax. No.:** +1 847 538 3666

**Declaration form version:** 1 March 2007 (Individual, Common Text, General)

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**Patent info:**

Patent Number	Application Number	Country	Foreign Counterparts	Title	Status	TSB Remark	TSB Patent Id	TSB Old Patent Id
7162094		US		Frequency coefficient scanning paths for digital video content	Granted		H264-91-01	
RE 38564		US		Motion estimation and compensation of video object planes for interlaced digital video	Granted		H264-91-02	
5 376		US		Adaptive	Granted		H264-	



968				compression of digital video data			91-03	
6 807 317		US		Method and decoder system for reducing quantization effects of a decoded image	Granted		H264-91-04	
6 836 514		US		Method for the detection and recovery of errors in the frame overhead of digital video decoding systems	Granted		H264-91-05	

**ITU-T registration date:** 2008-11-03

**Statement declaration date:** 2008-10-29

**Statement remarks:** Motorola submitted this statement to provide updated information relative to their earlier statement in H.264-30 (submitted 2003-12-19).

**DISCLAIMER:** This database is not certified to be either accurate or complete, but only reflects the information that has been communicated to ITU-T secretariat. The references to patents or patent applications have been included as notified to ITU-T secretariat. ITU-T secretariat has not verified the veracity or accuracy of such statements, nor the relevance of the identified patents or patent applications to ITU-T Recommendations.

**Recommendation number:** T-REC-H.264

**Statement Id:** H264-81

**Patent holder/Organization:** Motorola Inc.

**Main contact:** Ms. Latonia Gordon, Intellectual Property and Licensing Dept.

**Address:** 1303 E. Algonquin Road  
Schaumburg, IL 60196  
United States

**Tel. No.:** +1 847 576 3055

**Fax. No.:** +1 847 538 3666

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**Patent info:**

Patent Number	Application Number	Country	Foreign Counterparts	Title	Status	TSB Remark	TSB Patent Id	TSB Old Patent Id
6005 980		US		Motion estimation and compensation of video object planes for interlaced digital video	Granted		H264-81-01	
6 980 596		US		Macroblock level adaptive frame/field coding for digital video content	Granted		H264-81-02	

5235419		US		Adaptive motion compensation	Granted		H264- 81-03	
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**ITU-T registration  
date:**

2007-08-20

**Statement  
declaration date:**

2007-08-10

**Statement remarks:** The statement provides the complementary information to the statment  
H264-30 submitted on 19 December 2003.

## EXHIBIT 16

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445 Hoes Lane  
Piscataway, NJ 08855 USA  
FAX (+1 732) 875-0524

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### A. PATENT HOLDER/ORGANIZATION:

Legal Name of Organization: Motorola, Inc.

### B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:

Name & Department: Motorola Corp Law Department  
Address: 1303 E. Algonquin Road, Schaumburg, IL 60196  
Telephone: 847-2538-3486 Fax: 847-576-8761 E-mail: Jonathan.Ratsky@motorola.com

### C. IEEE STANDARD or PROPOSED IEEE STANDARD:

Number: 802.11 Task Group E  
Title: MAC Enhancements for Quality of Service

### D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:

If the Patent Holder owns or controls granted patent(s) and/or pending applications that it believes may be infringed by compliance with the Proposed IEEE Standard, please specify the patent number, published application, and/or relevant claims. (A patent search is not required.)

Patent Number(s) (if known): \_\_\_\_\_

Relevant Claims (optional): \_\_\_\_\_

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- ☐ 4. I am not aware of any patent(s) and/or patent claim(s) that my company may hold that would be relevant to the subject matter of the [Proposed] Standard.

### E. SIGNATURE:

Print name of authorized person: Jonathan Ratsky

Title of authorized person: Vice President & Director of Patent Operations

Signature of authorized person: [Signature] Date: 9/15/03

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Motorola, Inc

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Latonia Gordon Intellectual Property and Licensing Dept.  
 Address: 1303 E. Algonquin Road, Schaumburg, IL 60196  
 Telephone: 847-576-3055 Fax: 847-538-3666 E-mail: Latonia.Gordon@Motorola.com  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: IEEE 802.11r  
 Title: Amendment to IEEE 802.11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Fast Basic Service Set (BSS) Transition

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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- ☐ 5. I am not aware of any patent(s) and/or patent application(s) that my company may hold or control that would be essential to create a compliant implementation of the [Proposed] IEEE Standard.

*[Note: Completion of the following section is optional. Nothing in this Letter of Assurance shall be interpreted as giving rise to a duty to conduct a patent search.]*

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Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Jonathan P. Meyer

Title of authorized person: Sr. V.P.

Signature of authorized person:  Date: 4/21/05

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March 1994

doc: IEEE P802.11-94/36

**IEEE 802.11  
Intellectual Property Statement**

**Title:** Motorola Inc. Intellectual Property Statement on the  
Motorola Proposals

**Date:** March 1, 1994

**Author:** Val Jean F. Hillman  
Motorola, Inc  
Intellectual Property Department  
Corporate Offices  
1303 East Algonquin Road  
Schaumburg, IL 60196-1065  
Tel: 1-708 576-6364  
Fax: 1-708 576-3750

MOTOROLA INC. owns patents and has filed patent applications in the area of ~~wireless data~~ communications. In the event the proposed standard is adopted and the standard cannot be practiced without the use of one or more issued patents which are now or ~~hereafter owned~~, controlled or assigned to Motorola, Motorola agrees to license those patents on a non-discriminatory basis offering fair and commercially reasonable terms.

MOTOROLA otherwise reserves all rights under its patents and does not by this statement agree to license any patents where the standard may be followed without necessarily infringing such patents.



April 23, 1996

Mr. Victor Hayes  
Chair IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein  
The Netherlands

Dear Mr. Hayes:

This letter is written in response to your letter of September 27, 1995, which requested that Symbol Technologies, Inc. ("Symbol") confirm to the IEEE that it will provide worldwide licenses under certain of its patents related to the proposed IEEE 802.11 standard. In this regard:

In the event the proposed IEEE 802.11 standard is adopted, and the standard cannot be practiced without the use of one or more patents which are now or hereafter owned by Symbol, Symbol would upon request be willing to negotiate a non-exclusive, worldwide license, under the relevant claims of such patent or patents, on a nondiscriminatory basis and on reasonable terms and conditions including its then current royalty rates.

This letter does not grant to the IEEE or any other party any right with respect to Symbol's copyrights or other intellectual property rights (whether now or hereafter in existence) that relate to the proposed standard.

Very truly yours,

A handwritten signature in black ink, appearing to read "Richard Bravman", written over a horizontal line.

Richard Bravman  
Senior Vice President

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e-mail (.pdf), or FAX to:

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Institute of Electrical and Electronics Engineers, Inc.  
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Piscataway, NJ 08854 USA  
FAX (+1 732-875-0524) e-mail: patcom@ieee.org

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: aaron.bernstein@symbol.com  
URL: www.symbol.com

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11a  
Title: High Speed Physical Layer in the 5GHz band

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

In accordance with Clause 6 of the IEEE-SA Standards Board Bylaws, the Patent Holder hereby declares that its licensing position with respect to any patent(s) and/or patent application(s) that it may hold or control, the use of which would be essential to create a compliant implementation of either mandatory or optional portions of the [Proposed] IEEE Standard identified above, is as follows (check one box only):

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- ☐ 5. I am not aware of any patent(s) and/or patent application(s) that my company may hold or control that would be essential to create a compliant implementation of the [Proposed] IEEE Standard.

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Title: \_\_\_\_\_

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Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: aaron.bernstein@symbol.com  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11b

Title: Higher Speed Physical Layer (PHY) extension in the 2.4 GHz band

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Title: \_\_\_\_\_

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Title: \_\_\_\_\_

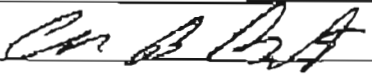
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Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: aaron.bernstein@symbol.com  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11e  
Title: Medium Access Control (MAC) Quality of Service Enhancements

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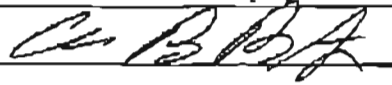
Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: [aaron.bernstein@symbol.com](mailto:aaron.bernstein@symbol.com)  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11g  
Title: Further Higher Rate (20+ Mbps) Extensions in the 2.4GHz Band

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Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

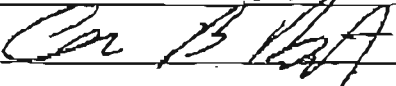
Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**G. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 APR 08

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Institute of Electrical and Electronics Engineers, Inc.  
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Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: [aaron.bernstein@symbol.com](mailto:aaron.bernstein@symbol.com)  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11i  
Title: Medium Access Control (MAC) Security Enhancement

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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- ☒ 2. The Patent Holder will grant a license under reasonable rates to an unrestricted number of applicants on a worldwide, non-discriminatory basis with reasonable terms and conditions to comply with the [Proposed] IEEE Standard.
- ☐ 3. The Patent Holder is unwilling to grant licenses according to the provisions of either 1 or 2 above.
- ☐ 4. The Patent Holder states that, without conditions, it will not enforce any of its present or future patent(s) against any person or entity creating a compliant implementation of the [Proposed] IEEE Standard.
- ☐ 5. I am not aware of any patent(s) and/or patent application(s) that my company may hold or control that would be essential to create a compliant implementation of the [Proposed] IEEE Standard.

*(Note: Completion of the following section is optional. Nothing in this Letter of Assurance shall be interpreted as giving rise to a duty to conduct a patent search.)*

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Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

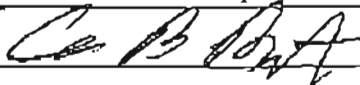
Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Use additional pages, as necessary.

**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 4 Apr 06

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*The IEEE Patent Policy and the procedures used to execute that policy are documented in the IEEE-SA Standards Board Bylaws and the IEEE-SA Standards Board Operations Manual, available at <http://standards.ieee.org/resources/index.html#guides>. These documents must be read and understood before completing and submitting this form.*

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# LETTER OF ASSURANCE FOR ESSENTIAL PATENTS

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445 Hoes Lane  
Piscataway, NJ 08854 USA  
FAX (+1 732-875-0524)

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## **A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Motorola, Inc.

## **B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Latoria Gordon Intellectual Property and Licensing Dept.  
Address: 1303 E. Algonquin Road, Schaumburg, IL 60196  
Telephone: 847-576-3055 Fax: 847-538-3666 E-mail: Latoria.Gordon@motorola.com  
URL: \_\_\_\_\_

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## **C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: IEEE 802.11k  
Title: Amendment to IEEE 802.11, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Radio Resource Measurement of Wireless LANs

## **D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Patent Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Jonathan P. Meyer

Title of authorized person: Sr. V.P.

Signature of authorized person: [Signature] Date: 4/21/05

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FAX (+1 732-875-0524) e-mail: [patcom@ieee.org](mailto:patcom@ieee.org)

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: [aaron.bernstein@symbol.com](mailto:aaron.bernstein@symbol.com)  
URL: [www.symbol.com](http://www.symbol.com)

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11k  
Title: Radio Resource Measurement Enhancements

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

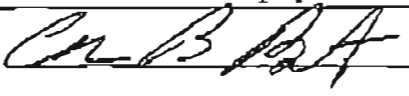
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Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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### A. PATENT HOLDER/ORGANIZATION:

Legal Name of Organization: MOTRONICA, INC.

### B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:

Name & Department: LATVIA GORDON, INTELLECTUAL PROPERTY LICENSING  
Address: 1303 E. ALABAMA RD. SUITE 1000 GILBERT, AZ 85134  
Telephone: 480-576-3655 FAX: 480-576-3666 E-mail: LGORDON@MOTRONICA.COM

### C. IEEE STANDARD or PROPOSED IEEE STANDARD:

Number: IEEE 802.11n  
Title: 802.11 PHY MAC ENHANCEMENT FOR HIGH THROUGHPUT

### D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:

If the Patent Holder owns or controls granted patent(s) and/or pending applications that it believes may be infringed by compliance with the Proposed IEEE Standard, please specify the patent number, published application, and/or relevant claims. (A patent search is not required.)

Patent Number(s) (if known): \_\_\_\_\_

Relevant Claims (optional): \_\_\_\_\_

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- ☐ 4. I am not aware of any patent(s) and/or patent claim(s) that my company may hold that would be relevant to the subject matter of the [Proposed] Standard.

### E. SIGNATURE:

Print name of authorized person: JUDY MUELLER

Title of authorized person: CHIEF IP LAWYER

Signature of authorized person: \_\_\_\_\_ Date: JUN 12, 2005

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FAX (+1 732-875-0524) e-mail: [patcom@ieee.org](mailto:patcom@ieee.org)

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: [aaron.bernstein@symbol.com](mailto:aaron.bernstein@symbol.com)  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11n  
Title: Standard for Enhancements for Higher Throughput

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

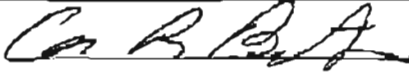
Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 APR 06

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11r  
Title: Fast Roaming/Fast BSS Transition

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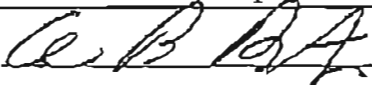
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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person.  Date: 11 Apr 06

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Legal Name of Organization: Motorola, Inc.

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Name & Department: Latoria Gordon Intellectual Property and Licensing Dept.  
Address: 1303 E. Algonquin Road, Schaumburg, IL 60196  
Telephone: 847-536-3055 Fax: 847-538-3666 Email: Latoria.Gordon@motorola.com  
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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: IEEE 802.11s  
Title: Amendment to IEEE 802.11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Extended Service Set (ESS) Mesh Networking

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**SIGNATURE:**

Print name of authorized person: \_\_\_\_\_ Jonathan P. Meyer

Title of authorized person: \_\_\_\_\_ Sr. V.P.

Signature of authorized person: \_\_\_\_\_ Date: 11/21/05

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11s  
Title: ESS Mesh Networking

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Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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Telephone: 847-576-3055 Fax: 847-538-3666 E-mail: Latonia.Gordon@Motorola.com  
URL: \_\_\_\_\_

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: IEEE 802.11u  
Title: Amendment to IEEE 802.11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Wireless Interworking with External Networks

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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- ☒ 2. The Patent Holder will grant a license under reasonable rates to an unrestricted number of applicants on a worldwide, non-discriminatory basis with reasonable terms and conditions to comply with the [Proposed] IEEE Standard.
- ☐ 3. The Patent Holder is unwilling to grant licenses according to the provisions of either 1 or 2 above.
- ☐ 4. The Patent Holder states that, without conditions, it will not enforce any of its present or future patent(s) against any person or entity creating a compliant implementation of the [Proposed] IEEE Standard.
- ☐ 5. I am not aware of any patent(s) and/or patent application(s) that my company may hold or control that would be essential to create a compliant implementation of the [Proposed] IEEE Standard.

*(Note: Completion of the following section is optional. Nothing in this Letter of Assurance shall be interpreted as giving rise to a duty to conduct a patent search.)*

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Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

*Use additional pages, as necessary.*

**E. SIGNATURE:**

Print name of authorized person: Jonathan P. Meyer

Title of authorized person: Senior Vice President

Signature of authorized person:  Date: August 16, 2006

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Institute of Electrical and Electronics Engineers, Inc.  
445 Hoos Lane  
Piscataway, NJ 08854 USA  
FAX (+1 732-875-0524) e-mail: ppalcom@ieee.org

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Motorola, Inc

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Latonia Gordon Intellectual Property and Licensing Dept.  
Address: 1303 E. Algonquin Road, Schaumburg, IL 60196  
Telephone: 847-576-3055 Fax: 847-538-3666 E-mail: Latonia.Gordon@Motorola.com  
URL: \_\_\_\_\_

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: IEEE 802.11v  
Title: Amendment to IEEE 802.11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications: Wireless Network Management

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_



Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Jonathan P. Meyer

Title of authorized person: Senior Vice President

Signature of authorized person: Jonathan P. Meyer Date: August 11, 2006

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## LETTER OF ASSURANCE FOR ESSENTIAL PATENTS

Please return via mail,  
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Secretary, IEEE-SA Standards Board Patent Committee  
Institute of Electrical and Electronics Engineers, Inc.  
445 Hoes Lane  
Piscataway, NJ 08854 USA  
FAX (+1 732-675-0524) e-mail: [patcom@ieee.org](mailto:patcom@ieee.org)

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**A. PATENT HOLDER/ORGANIZATION:**

Legal Name of Organization: Symbol Technologies, Inc.

**B. PATENT HOLDER'S CONTACT FOR LICENSE APPLICATION:**

Name & Department: Aaron Bernstein, Legal Department  
Address: One Symbol Plaza, MS: A-6, Holtsville, NY 11742-1300  
Telephone: 631.738.4055 Fax: 631.738.4110 E-mail: [aaron.bernstein@symbol.com](mailto:aaron.bernstein@symbol.com)  
URL: [www.symbol.com](http://www.symbol.com)

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**C. IEEE STANDARD or PROPOSED IEEE STANDARD:**

Number: 802.11v  
Title: Wireless Network Management

**D. PATENT HOLDER'S POSITION REGARDING LICENSING ESSENTIAL PATENT RIGHTS:**

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Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

Patent/Application Number: \_\_\_\_\_  
Title: \_\_\_\_\_

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**E. SIGNATURE:**

Print name of authorized person: Aaron Bernstein

Title of authorized person: Vice President & Deputy General Counsel

Signature of authorized person:  Date: 11 Apr 06

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